

EL SEGUNDO POWER REDEVELOPMENT PROJECT

Application For Certification (00-AFC-14)
Los Angeles County, California



Part 1
Executive Summary - Noise
Pages 1 - 158

CALIFORNIA
ENERGY
COMMISSION

**REVISED PRESIDING MEMBER'S
PROPOSED DECISION**

APRIL 2004
(P800-04-008)



PART 1

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EXECUTIVE SUMMARY:

Recommend:
APPROVAL
WITH CONDITIONS

The El Segundo Redevelopment Project Committee of the Energy Commission recommends approval of El Segundo Power II LLC's proposed 630-megawatt (MW) combined-cycle facility in El Segundo, California, together with the following highlighted measures to mitigate potential environmental and community impacts and comply with applicable laws, ordinances, regulations and standards (LORS):

ENERGY RESOURCES:

- ✓ The proposed project will replace 1950's vintage generating units with state-of-the-art combined-cycle technology resulting in optimized resource efficiency.
- ✓ The project will use natural gas via an existing pipeline.

LAND USE:

- ✓ The proposed project will reuse existing generating station infrastructure and property already zoned for and being used to generate electricity.
- ✓ The bike path recreational use in front of ESGS power plant will be enhanced through a setback of the fence/seawall, added landscaping and benches.

AIR QUALITY:

- ✓ The power plant will use state-of-the-art Best Available Control Technology to minimize emissions.
- ✓ Complete offsets will be used to compensate for any pollutant for which the South Coast Air Quality Management District determines it is in non-attainment.

WATER RESOURCES:

- ✓ The proposed project will use sea water for cooling purposes in a once-through system and reclaimed water for most other water needs thus providing a net reduction in potable water consumption at the generating station.

BIOLOGY

- ✓ The proposed project sea water cooling system will be subject to an annual flow cap of 126.78 billions gallons, with specific caps applied to the months of February, March and April.
- ✓ Stringent pending federal Clean Water Act intake structure regulations will be applied to the station through its 2005 NPDES permit renewal process. As a result, the project will

be required to reduce entrainment through cooling water intake #1 by at least 60 percent compared to an unmitigated system.

- ✓ ~~The project will enhance marine resources with a voluntary 3-month seasonal flow cap to reduce peak entrainment impacts.~~
- ✓ The project owner will conduct a study to evaluate the potential for utilizing aquatic filter barrier technology to eliminate entrainment of marine organisms at the generating station and, if feasible, install the filter barrier.
- ✓ The project owner will provide \$1 Million in trust to the Santa Monica Bay Restoration Commission to understand the biological dynamics of the Santa Monica Bay and improve the health of the Bay's habitat.

VISUAL

- ✓ The proposed project includes perimeter landscaping, a seawall, and a landscaped berm to screen views. Views of the power plant will be screened while maintaining appropriate ocean and scenic views.
- ✓ The proposed project lowers exhaust stack height for two out of the four exhaust stacks at the generating station.
- ✓ The new facility and the remaining units will have shielded and directed lighting to minimize glare.
- ✓ The proposed project will be color and architecturally treated including colored panels on higher elevations to provide architectural screening.

NOISE

- ✓ Construction and demolition activities on the tank farm portion of ~~ESGS~~ the power plant will be conditioned to ensure minimal disturbance of the residential area to the south.
- ✓ Project owner shall conduct before and after noise surveys to ensure that the project does not cause sound levels at the nearest residential receptor to increase by more than 2 decibels.

HAZARDOUS MATERIALS

- ✓ Ammonia will be delivered to ~~ESGS~~ the power plant via a new pipeline from the Chevron refinery eliminating the normal truck deliveries of ammonia ~~to ESGS~~.

Dated: April 16, 2004

ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION

WILLIAM J. KEESE
Chairman and Presiding Member
El Segundo AFC Committee

JAMES D. BOYD
Commissioner and Associate Member
El Segundo AFC Committee

PROJECT DESCRIPTION

- **PROJECT NAME:** El Segundo Power Redevelopment Project (ESPR)
- **PROJECT OWNER:** El Segundo Power II, LLC
- **PROJECT OBJECTIVES:** (per Project Owner)
 1. To produce cost-effective electricity to sell in California's deregulated electricity market;
 2. To improve the overall environmental performance and reliability of the electrical generating sector in Southern California;
 3. To produce electricity with minimal incremental environmental impacts;
 4. To alleviate the consequences of today's capacity shortage in Southern California; and
 5. To assist meeting the projected demand growth in Los Angeles County.
- **FUTURE PROJECT/SITE DEVELOPMENT:** None proposed. The power plant proposal constitutes the whole of the project.
- **PROJECT: BEFORE & AFTER:**



Existing View



Simulation View

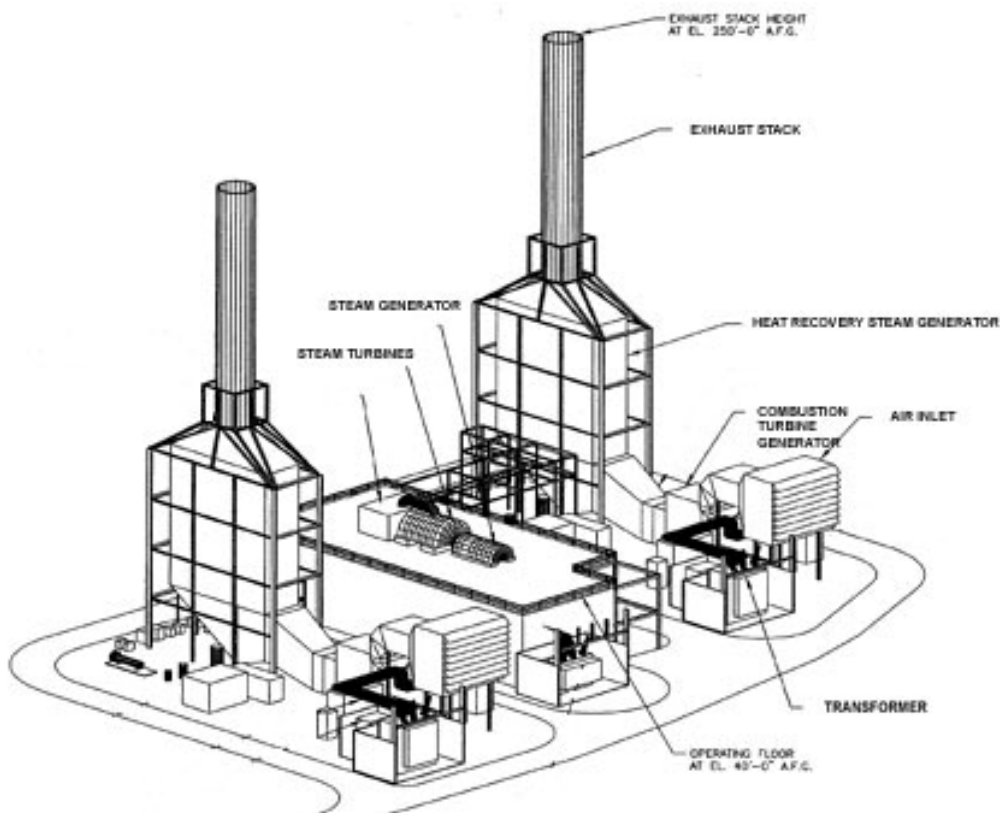
- **PROJECT LOCATION:**

- Location: 301 Vista Del Mar, El Segundo, California
- Local Jurisdiction: City of El Segundo
- Zoning: Heavy Industrial (M-2)
- Air Quality Jurisdiction: South Coast Air Quality Management District (SCAQMD)
- Seismic Zone: Zone 4
- Vehicular Access: Regional and interregional vehicular access for the project area is provided by a system of freeways (Interstate-405 and Interstate-105), highways and local arterials. Primary access to the site will be from the north on Vista Del Mar via West Imperial Highway, Glenn Anderson Freeway (I-105), and the San Diego Freeway (I-405).
- Site Setting: The proposed facility will be located entirely within the existing El Segundo Generating Station, an existing power plant operated by NRG El Segundo Operations, Inc. The project site consists of approximately 33 acres. Electricity generated by the project will be delivered to the existing Southern California Edison (SCE) substation located on a separate parcel immediately adjacent to the ESGS property. From SCE's El Segundo 230-kV substation, electricity will be transmitted to users by the existing transmission and distribution network. Pipeline-quality natural gas will be supplied to the combined-cycle unit via an existing pipeline owned by Southern California Gas Company (SoCalGas).
- Alternative Locations Considered: No alternative site could meet the project objective of improving the overall environmental performance and reliability of the electrical generating sector in Southern California and have fewer environmental and community impacts.

- **PROJECT DESIGN:**

- Type: Combined-cycle electric generating facility: The project will supply capacity and energy to California's electric market.
- Fuel: Natural Gas (No backup fuel)
- Output: 630MW
- Combustion Turbines: Two (Units 5 and 7)
 - Manufacturer: General Electric
 - Model/Type: PG7241FA
 - Maximum Rated Output: Each gas turbine-generator will generate a maximum of 171.7 MW (gross).
- Emission Controls:
 - NOx: Low-NOx Burner with water injection/SCR will control NOx emission to ~~2.5~~ 2.0 parts per million (ppm).

- Steam Turbine: One (Unit 6)
 - Manufacturer: General Electric
 - Model/Type: Reheat, double-flow, down-exhausting condensing steam turbine with nominal throttle steam conditions of 1,815 psia, 1050°F, and 1050°F reheat temperature and a hydrogen-cooled generator.
 - Maximum Rated Output: Peak generating output approximately 280 MW.
- Heat Recovery Steam Generator: The HRSGs will recover waste heat from combustion turbine generator exhaust and generate steam for the steam turbine. They are vertical in design and include duct firing to generate additional steam output for full capacity.



- Cooling Water: The plant will continue the use of an existing sea-water cooling system that uses sea water from the Santa Monica Bay for the once-through cooling. The existing intake pipeline extends approximately 2,600 feet offshore. The cooling water discharges through an outfall structure 1,990 feet offshore.
- Hazardous Materials On-site: The following are anticipated hazardous materials that will be on-site for purposes of operation: aqueous ammonia, hydrazine, natural gas, sulfuric acid, hydrogen, diesel fuel, lube oil, mineral oil, propane.

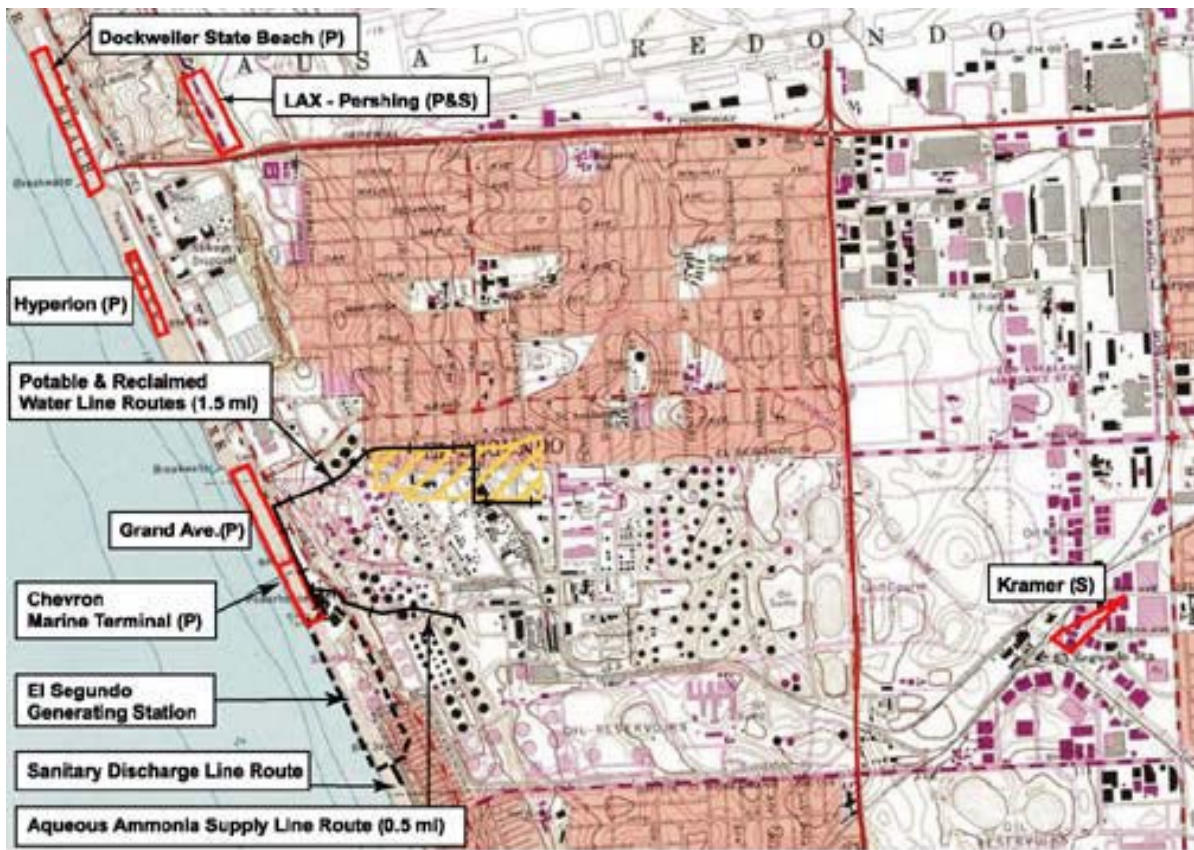
- **Wastes & Disposal:** Wastes typical of power generation operation including oily rags, broken and rusted metal and machine parts, defective or broken electrical materials, empty containers and other miscellaneous solid wastes including typical refuse will be disposed of in accordance with applicable laws and regulations.
- **Tallest Feature:** The HRSG exhaust stack structure will be 205-feet tall.
- **Alternative Technology Considered:** The project will utilize an existing operational seawater intake system. Although alternative cooling options were considered, none of these alternatives was superior to the proposed project.
- **Alternative Fuel Considered:** No alternative fuels were considered.
- **Alternative Equipment Considered:** Only Best Available Control Technology was considered for this project.

SURROUNDING SETTING:

The ESPR site is located on 32.8 acres within the El Segundo Generating Station in the City of El Segundo in Los Angeles County. El Segundo is approximately 20 miles from the Los Angeles downtown area. The project site is approximately 2.5 miles south of Los Angeles International Airport (LAX).

The project site is located on ~~land that runs on~~ approximately 4,200 linear feet of Santa Monica Bay coastline ~~within the City of El Segundo~~. The site is bound by a street named Vista Del Mar and a Chevron refinery to the east; Santa Monica Bay beaches to the west, 45th Street in the City of Manhattan Beach to the south and the Chevron Marine Terminal to the north.

A portion of the City of Los Angeles that contains the Scattergood Power Generating Facility, the Hyperion Wastewater Treatment Plant, LAX and other industrial development is located north of the project site. The City of El Segundo is located to the northeast, east, and southeast of the project site. Residential uses, open space, and commercial uses are located to the northeast along the proposed water supply line route. Various heavy industrial uses exist east of the project site. The Chevron refinery lies to the east and southeast of the project site. Residential uses are located south of the project site within the City of Manhattan Beach.



The project site is located on the edge of Santa Monica Bay at the existing El Segundo Generating Station site in the City of El Segundo in Los Angeles County. The proposed new facility will utilize approximately 32.8 acres of already hard packed or paved surface area.

RELATED FACILITIES

- Switchyard
- Existing above ground 230 kV switchyard

- Electric Transmission
- Voltage: 12 kV
- Type: Existing above-ground
- Tower Type: No new towers off-site; existing steel frame structures on-site will be replaced with pole structures.
- Route: No new off-site facilities; replacement of on-site generator lines from generators to on-site switchyard.
- Point of Interconnection: At existing on-site SCE Switchyard.

- Foreseeable Effect on Downstream Transmission Facilities: Increased capacity of the ESPR is handled via some switch gear upgrades within SCE grid pursuant to SCE detailed facilities study.
- Alternative Routes Considered: N/A

Gas Pipeline

- Already exists.

Ammonia Pipeline

- Diameter: 12 inches
- Length: 0.5 mile

AIR QUALITY – Summary of Findings and Conditions

	PROJECT	CUMULATIVE IMPACTS	LORS COMPLIANCE
Construction Equipment	MITIGATION	None	YES
	<p>Construction: Large construction equipment potentially contributes to existing violations of state 24-hour and annual PM₁₀ standards. To minimize PM₁₀ emissions, the Project Owner shall require its construction contractors to minimize emissions from diesel-powered earthmoving equipment.</p> <p>MITIGATION:</p> <p><input checked="" type="checkbox"/> The Project Owner shall require construction contractors to mitigate diesel emissions by measures such as the use of catalyzed diesel particulate filters, use of ultra-low sulfur diesel fuel, and/or use of EPA and CARB 1996 certified diesel engines. Condition AQ-C3.</p> <p><i>References: FSA Air Quality, pp. 4.1-29.</i></p>		
Construction Dust	MITIGATION	None	YES
	<p>Grading and excavation activities potentially produce dust that can be transported off-site by wind. To control airborne fugitive dust, the Project Owner shall water or apply chemical dust suppressants to disturbed areas, apply gravel or paving to traffic areas, and wash wheels of vehicles or large trucks leaving the site.</p> <p>MITIGATION:</p> <p><input checked="" type="checkbox"/> The Project Owner shall prepare and implement a Fugitive Dust Mitigation Plan to minimize dust during construction. Condition: AQ-C2.</p> <p><i>References: FSA Air Quality, pp. 4.1-16, 19.</i></p>		

Federal & California Air Quality Standards	PROJECT	CUMULATIVE IMPACTS	LORS COMPLIANCE
<ul style="list-style-type: none"> ▪ Ozone (O3) 	MITIGATION	None	YES
	<p>The power plant location is designated non-attainment for ozone, which is primarily formed by chemical reactions between nitrogen oxides (NOx) and precursor organic compounds (VOC) in sunlight. Power plant emissions of NOx and VOCs as ozone precursors will be minimized by low-NOx combustors in the combustion turbine and Selective Catalytic Reduction (SCR) in the flue gas stack. A CO oxidizing catalyst in the HRSG will further reduce VOC emissions.</p> <p>Since minimum emissions would contribute to a violation of the ozone standards, the Project Owner shall obtain NOx and VOC offsets.</p> <p>MITIGATION:</p> <ul style="list-style-type: none"> ☑ The Project Owner shall use SCR to meet BACT emission limitations. Conditions: AQ-2, AQ-3, and AQ- 4. ☑ The Project Owner shall install a continuous emissions monitoring system for NOx and report emissions. Condition: AQ-15. ☑ The Project Owner shall limit NOx and VOC emissions. Conditions: AQ-9, and AQ- 11. <p><i>References: FSA 4.1-9, 25, 27, 33-36.</i></p>		
<ul style="list-style-type: none"> ▪ Nitrogen Dioxide (NO₂; also generically known as NOx) 	MITIGATION	None	YES
	<p>The power plant location is designated attainment for NO₂. NO₂ is formed in the combustion process. Power plant NOx emissions will be minimized by low-NOx combustors in the combustion turbine and steam injection plus SCR in the flue gas stack. For NO₂, the emission rate is limited to 2.5 <u>2.0</u> ppm. NO₂ will be continuously monitored in the stack. NOx emissions would not cause a violation of NO₂ standards; however, NOx offsets are required as precursors to ozone.</p> <p>MITIGATION:</p> <ul style="list-style-type: none"> ☑ The Project Owner shall limit NOx emissions. Conditions: AQ-9. <p><i>References: FDOC pp. 6, 8 & 21.</i></p>		

	PROJECT	CUMULATIVE IMPACTS	LORS COMPLIANCE
<ul style="list-style-type: none"> Carbon Monoxide (CO) 	MITIGATION	None	YES
	<p>The power plant location is designated attainment for federal and California CO. CO is formed in the combustion process. CO emissions will be minimized by good combustion practices and an oxidizing catalyst in the HRSG. For CO, the emission rate is limited to 6 <u>4</u> ppm. CO will be continuously monitored in the stack.</p> <p>MITIGATION:</p> <p><input checked="" type="checkbox"/> The Project Owner shall install a continuous emissions monitoring system for CO and report and limit emissions of CO. Condition: AQ-6, AQ-8 and AQ-9.</p> <p><i>References: FDOC pp.7, 19 & 27. FSA pp. 4.1-32 to 34.</i></p>		
<ul style="list-style-type: none"> Particulate Matter 10 Microns (PM₁₀) 	MITIGATION	None	YES
	<p>The power plant location is designated non-attainment for state 24-hour PM₁₀. Primary PM₁₀ is formed by the combustion gases in the exhaust stack. Secondary PM₁₀ is formed downstream by mixed gases in the atmosphere. PM₁₀ emissions will be monitored and limited.</p> <p>MITIGATION:</p> <p><input checked="" type="checkbox"/> The Project Owner shall control PM₁₀ to meet emission limitations. Condition: AQ-9.</p> <p><input checked="" type="checkbox"/> The Project Owner shall conduct source testing and report emissions. Conditions: AQ-6, AQ-7 & AQ 8.</p> <p><i>References: FDOC pp 8, 20 & 26.</i></p>		

	PROJECT	CUMULATIVE IMPACTS	LORS COMPLIANCE
<ul style="list-style-type: none"> Sulfur Dioxide (SO₂) 	MITIGATION	None	YES
	<p>Sulfur Dioxide (SO₂) is produced from the combustion of fuels containing sulfur. The proposed project is using pipeline-quality natural gas, thus ensuring that sulfur emissions will be well within emission limits. The use of pipeline-quality natural gas also exempts the project from the SO_x portion of the SCAQMD RECLAIM program.</p> <p>MITIGATION:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> The Project Owner shall control SO_x (as SO₂) to meet emission limitations. Condition: AQ-9 and AQ-11. <input checked="" type="checkbox"/> The Project Owner shall conduct source testing and report emissions. Condition: AQ-6, AQ-7 and A-8. <p><i>References: FDOC pp. 9, 8, 20 & 23.</i></p>		
<ul style="list-style-type: none"> Volatile Organic Compounds (VOC) 	MITIGATION	None	YES
	<p>There are no state or federal standards for VOC, per se. VOCs are a precursor for ozone. (See ozone, above.) Consequently, limiting VOC emissions and the use of VOC offsets are part of the strategy for ozone attainment. VOCs are formed in the combustion process. BACT for VOC emissions will be achieved by use of good combustion practices, which use a fuel-to-air ratio resulting in low VOC emissions. The oxidation catalyst for CO emissions further reduces VOC emissions. In the SCAQMD VOC's are referred to as Reactive Organic Gases (ROGs).</p> <p>MITIGATION:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> The Project Owner shall control VOC to meet an emission limitation of 2.0 ppm. Conditions: AQ-9 and AQ-11. <input checked="" type="checkbox"/> The Project Owner shall conduct source testing and report emissions. Condition: AQ-6, AQ-7 and A-8. <p><i>References: FDOC pp. 7, 19 & 25.</i></p>		

	PROJECT	CUMULATIVE IMPACTS	LORS COMPLIANCE
Commissioning & Startup	Insignificant	None	YES
	<p>The initial commissioning of a power plant refers to the time frame between completion of construction and the consistent production of electricity for sale to the market. Normal operating emission limits usually do not apply during initial commissioning procedures. The turbines will go through several series of tests during initial commissioning. Commissioning is a one-time event, subject to controls to minimize emissions. Therefore, there are no significant air quality impacts from facility commissioning.</p> <p>All startup scenarios result in emissions that are higher than normal operating emission limits; however, the number of startup events and their duration are controlled by District rules. Thus, there is no significant air quality impact from facility startup.</p> <p><i>Reference: FDOC, p. 9 - 12.</i></p>		

AIR QUALITY – GENERAL

This analysis evaluates the expected air quality impacts of the emissions of criteria air pollutants due to the planned construction and operation of the project. Criteria air pollutants are defined as those for which a state or federal ambient air quality standard has been established to protect public health. They include nitrogen dioxide (NO₂), sulfur dioxide (SO₂), carbon monoxide (CO), ozone (O₃), and particulate matter less than 10 microns in diameter (PM₁₀). Volatile organic compounds (VOCs) are regulated as precursors to ozone.

In carrying out this analysis, the Energy Commission evaluated the following major points:

- whether the project conforms with applicable Federal, State and local air quality laws, ordinances, regulations and standards;
- whether the project will cause significant air quality impacts, including a new violation of ambient air quality standards or contribution to existing violations of those standards; and
- whether the mitigation proposed for the project is adequate to lessen the potential impacts to a level of insignificance.

The South Coast Air Quality Management District (SCAQMD) prepared its Final Determination of Compliance (FDOC) February 14, 2002. In its comments on the Proposed Decision, the SCAQMD informed the Commission that BACT levels for NO_x and CO had been lowered as a result of the analysis performed in the Magnolia Power Project proceeding. (01-AFC-6). These revised BACT levels are now reflected in the Conditions of Certification. Project equipment includes General Electric 7241FA combustion turbine generators (natural gas fired) with dry, low NO_x combustors; heat recovery steam generators (HRSG) with natural gas duct burners; and a selective catalytic reduction (SCR) system and CO oxidizing catalyst system.

Construction Equipment/Fugitive Dust

The power plant construction requires the use of large earth moving equipment, which generates considerable combustion emissions themselves, along with creating fugitive dust emissions during grading, site preparation, foundations, underground utility installation, and building erection.

The Applicant did not perform air dispersion modeling analyses of the potential construction impacts at the project site. However, both the Applicant and the Energy Commission Staff (Staff) agreed that any construction impacts would be mitigated to the extent feasible by “boilerplate” construction Conditions of Certification. The boilerplate construction Conditions of Certification were derived from previously certified large and lengthy construction projects and thus will be very effective for this project.

Construction of the project and ancillary facilities will result in unavoidable short-term impacts and it is likely that the general public may be exposed to construction impacts associated with

the project. Nevertheless, the impact from the construction of the project could have a significant and unavoidable impact on PM₁₀ ambient air quality standards, and should be avoided or mitigated, to the extent feasible.

The project will undertake one or more of the following measures to reduce emissions during construction activities:

To control exhaust emissions from heavy diesel construction equipment:

- Limit engine idle time and shutdown equipment when not in use.
- Perform regular preventative maintenance to reduce engine problems.
- Use CARB Low-Sulfur fuel for all heavy construction equipment.
- Ensure that all heavy construction equipment complies with EPA 1996 Diesel standards.
- Use catalyzed diesel particulate filters on diesel engines.

To control fugitive dust emissions:

- Use water application or chemical dust suppressant on unpaved travel surfaces and parking areas.
- Use wetting or covering of stored earth materials on-site.
- Require all trucks hauling loose material to either cover or maintain a minimum of two feet of freeboard.
- Use gravel pads and wheel washers as needed.
- Use wind breaks and chemical dust suppressant or water application to control wind erosion from disturbed areas.

With the implementation of these mitigation measures, the construction air quality impacts will be mitigated to the extent feasible and, when combined with the temporary nature of this construction, will be insignificant. (FSA **Air Quality**, pp. 29-30; FSA Errata 12/13/2002 Conditions of Certification pp. 1-4.)

MITIGATION:

- ☑ The Project Owner shall require construction contractors to mitigate diesel emissions by measures such as the use of catalyzed diesel particulate filters, use of ultra-low sulfur diesel fuel, and/or use of EPA and CARB 1996 certified diesel engines. Condition **AQ-C3**.
- ☑ The Project Owner shall prepare and implement a Fugitive Dust Mitigation Plan to minimize dust during construction. Conditions: **AQ-C2**.

Ozone

Ozone is not directly emitted from stationary or mobile sources, but is formed as the result of chemical reactions in the atmosphere between directly emitted air pollutants. Nitrogen oxides (NO_x) and hydrocarbons (Volatile Organic Compounds (VOCs)) interact in the presence of sunlight to form ozone. The SCAQMD is designated "non-attainment" for state standard and federal 1-hour ozone standard. Attaining the federal ozone ambient air quality standard is

typically planned for by controlling the ozone precursors, NO₂ and VOC. The 1997 Ozone State Implementation Plan for the SCAQMD relies on the California Air Resource Board (CARB) to control mobile sources, the U.S. Environmental Protection Agency (US EPA) to control emission sources under federal jurisdiction, and SCAQMD to control local industrial sources. Through these control measures, California and SCAQMD are required to reach attainment of the federal ozone ambient air quality standard by 2010.

Ozone reduction requires reducing NO_x and VOC emissions. To reduce NO_x emissions, the Applicant proposes to use dry, low-NO_x combustors in the combustion turbines and a post-combustion SCR system. To reduce VOC (and CO) emissions, the Applicant proposes to use a combination of good combustion and maintenance practices, along with an oxidizing catalyst located in the HRSG and offsets.

Dry Low-NO_x Combustors

Over the last 20 years, combustion turbine generator manufacturers have focused their attention on limiting NO_x formed during combustion. One method has been steam or water injection into the combustor cans to reduce combustion temperatures and the formation of NO_x. Because of the expense and efficiency losses that result of this method, CTG manufacturers are presently choosing to limit NO_x formation through the use of dry low-NO_x technologies. General Electric's dry low-NO_x combustor is a two-stage ignition system. Initially the fuel/air mixture is ignited in two independent combustors and enters a premix stage (0%-60% load). The low emissions are achieved from approximately 60% load on with the ignition of the center burner.

In this process, firing temperatures remain somewhat low, minimizing NO_x formation, while thermal efficiencies remain high. At steady state, CTG loads greater than 60 percent, NO_x concentrations entering the HRSG are 9 ppm corrected to 15 percent O₂. CO concentrations are more variable, with concentrations greater than 100ppm up to approximately 60 percent load, dropping to 9 ppm from there on.

Flue Gas Controls

To further reduce the emissions from the combustion turbines before they are exhausted into the atmosphere, flue gas controls, primarily catalyst systems, will be installed in the HRSGs. ESPR will use two catalyst systems, a selective catalytic reduction system to reduce NO_x, and an oxidizing system to reduce CO. (FSA 4.1-46.)

Selective Catalytic Reduction (SCR)

To further reduce the emissions from the combustion turbines before they are exhausted into the atmosphere, flue gas controls, primarily catalyst systems, will be installed in the HRSGs. SCR refers to a process that chemically reduces NO_x by injecting ammonia into the flue gas stream over a catalyst in the presence of oxygen. The process is termed "selective" because the ammonia-reducing agent preferentially reacts with NO_x rather than oxygen, producing inert nitrogen and water vapor. The performance and effectiveness of SCR systems are dependent upon remaining in a range of operating temperatures, which may vary with catalyst designs. (FSA p. 4.1-47.)

The proposed project will use a combination of the dry, low-NO_x combustors and SCR system to produce NO_x concentration exiting the HRSG stack of ~~2.5~~ 2.0 ppm, corrected to 15 percent excess oxygen over a 1-hour period. (FSA 4.1-47.)

A NO_x limit of ~~2.5~~ 2.0 ppm is currently considered BACT for natural gas firing by both the EPA and the California Air Resources Board. Based upon manufacturer's data and a cost effectiveness analysis, SCAQMD specified a 3-hour average limit of ~~2.5~~ 2.0 ppm.

The project owner will be replacing existing boiler systems (units 1 & 2) with a 2-on-1 combined-cycle combustion/steam turbine package (units 5, 6, and 7). This will result in a reduction of NO_x and CO emissions, but an increase in VOC, SO_x, and PM₁₀ emissions. To offset these increased emission impacts, the project owner will provide emission reduction credits (ERCs) from the SCAQMD ERC bank, the Priority Reserve, and the open market.

MITIGATION:

- ☑ The Project Owner shall use SCR to meet BACT emission limitations. Conditions: **AQ-2, AQ-3, and AQ- 4.**
- ☑ The Project Owner shall install a continuous emissions monitoring system for NO_x and report emissions. Condition: **AQ-15.**
- ☑ The Project Owner shall limit NO_x and VOC emissions. Conditions: **AQ-9, and AQ- 11.**

Nitrogen Dioxide

Nitrogen dioxide (NO₂) can be emitted directly as a result of combustion or can be formed from nitric oxide (NO) and oxygen. NO is typically emitted from combustion sources and readily reacts with oxygen or ozone to form NO₂. The NO reaction with ozone can occur within minutes and is typically referred to as ozone scavenging. By contrast, the NO reaction time with oxygen is on the order of hours under the proper conditions. SCAQMD is designated "attainment" for both the state and federal NO₂ ambient air quality standards.

The project owner has proposed all practical and technically feasible mitigation measures to limit NO_x emissions from the combustion turbines to ~~2.5~~ 2.0 ppm. In addition, the Applicant will use an oxidizing catalyst to limit CO emissions, which will also limit VOC emissions.

MITIGATION:

- ☑ The Project Owner shall limit NO_x emissions. Conditions: **AQ-9.**

Carbon Monoxide

Carbon monoxide (CO) is a directly emitted air pollutant as a result of combustion. The SCAQMD is designated "non-attainment" for the federal 1-hour and 8-hour CO ambient air quality standards. This means that the area has an average CO concentration of 16.5 ppm or above.

Oxidizing Catalyst

To reduce carbon monoxide (CO) emissions from the combustion turbines, the proposed project includes an oxidizing catalyst, which is similar in concept to catalytic converters used in automobiles. The catalyst is usually coated with a noble metal, such as platinum, which will oxidize unburned hydrocarbons and CO to water vapor and carbon dioxide (CO₂). The CO catalyst is proposed to limit the CO concentrations exiting the HRSG stack to a BACT limit of ~~6~~ 4 ppm (natural gas), corrected to 15% excess oxygen and averaged over 1-hour. (FDOC p.4.1-47.)

MITIGATION:

- ☒ The Project Owner shall install a continuous emissions monitoring system for CO and report and limit emissions of CO. Condition: **AQ-6, AQ-8 and AQ-9.**

Particulate Matter – PM₁₀

PM₁₀ is a particulate that is 10 microns in diameter or smaller and is suspended in air. PM₁₀ can be directly emitted from a combustion source (primary PM₁₀), soil disturbance (fugitive dust) or it can form downwind (secondary PM₁₀) from some of the constituents of combustion exhaust (NO_x, SO_x and ammonia). San Bernardino (not the entire South Coast air basin) has been designated a “non-attainment” zone for the federal 24-hour and annual PM₁₀ ambient air quality standards. The ~~South Coast air basin~~ SCAQMD (including a portion of the San Bernardino County within the basin) has been designated as a “non-attainment” zone for the state 24-hour and annual PM₁₀ ambient air quality standards. Emissions of primary PM₁₀ are reduced by the use of natural gas as the power plant fuel. Natural gas contains very little solid particulate.

MITIGATION:

- ☒ The Project Owner shall control PM₁₀ to meet emission limitations. Condition: **AQ-9 & AQ-11.**
- ☒ The Project Owner shall conduct source testing and report emissions. Conditions: **AQ-6, AQ-7 & AQ 8.**

Sulfur Dioxide

Sulfur dioxide is typically emitted as a result of the combustion of fuel containing sulfur. Fuels such as natural gas contain very little sulfur and consequently have very low SO₂ emission when combusted. By contrast, fuels high in sulfur content such as lignite (a type of coal) emit very large amounts of SO₂ when combusted. Sources of SO₂ emissions within the South Coast Air District come from every economic sector and include a wide variety of fuels, including gaseous, liquid and solid. The ~~South Coast air basin~~ SCAQMD is designated “attainment” for all the SO₂ state and federal ambient air quality standards. The closest SO₂ monitoring station to the project site is the Hawthorne monitoring station. The historic 1-hour, 24-hour and annual average SO₂ concentrations of SO₂ are far below the state and federal SO₂ ambient air quality standards. However the trends are ambiguous and indicate neither an increase nor a decrease in SO₂ concentrations.

MITIGATION:

- ☑ The Project Owner shall control SO_x (as SO₂) to meet emission limitations. Conditions: **AQ-9 and AQ-11.**
- ☑ The Project Owner shall conduct source testing and report emissions. Conditions: **AQ-6, AQ-7 and A-8.**

Volatile Organic Compounds

There are no state or federal ambient air quality standards for VOC, ~~per se~~. VOCs are a precursor for ozone. ~~(See ozone, above)~~ Consequently, the SCAQMD limits VOC emissions and uses VOC offsets are part of the strategy for ozone attainment. VOCs are formed in the combustion process. BACT for VOC emissions will be achieved by use of good combustion practices, which use a fuel to air ratio resulting in low VOC emissions. The oxidation catalyst for CO emissions further reduces VOC emissions. In the SCAQMD, VOCs are referred to as Reactive Organic Gasses (ROGs).

MITIGATION:

- ☑ The Project Owner shall control VOC to meet an emission limitation of 2.0 ppm. Conditions: **AQ-9 & AQ-11.**
- ☑ The Project Owner shall conduct source testing and report emissions. Conditions: **AQ-6, AQ-7 and A-8.**

Commissioning and Start-Up

The initial commissioning of a power plant refers to the time frame between completion of construction and the consistent production of electricity for sale on the market. Normal operating emission limits usually do not apply during initial commissioning procedures. The turbines used at ESPR will go through several series of testing during initial commissioning. During the first set of tests, post-combustion controls will not be operational (i.e., the SCR and oxidation catalyst).

The expected emissions from the initial commissioning for both ESPR combustion turbines are reflected in the FSA, Air Quality Table 13, p. 4.1-38. Experience from recent licensing cases suggests that initial commissioning for a combined-cycle system of this size lasts approximately 30 days. Additionally, daily operation of the turbines during the commissioning period is typically limited to several hours per day. It is assumed that the turbines will be operated, on average, not more than 4 hours each in a single day during the initial commissioning period. Staff also assumes that the SCR and oxidation catalyst will be installed approximately 15 days into the initial commissioning period.

ESPR has three general start-up scenarios: cold start, warm start, and hot start. Cold startups usually occur after extended periods of shutdown, typically 3 days or more. Warm startups occur after shorter periods of shutdown duration than those for cold startups, from 24 to 72 hours. Hot startups generally occur following a trip off line or non-critical emergency shutdown, usually lasting only a few hours. Except for CO emissions, the project owner has chosen to assume that hot and warm startups emissions are the same as cold startup emissions. The project owner assumes 365 hours of startups per year per turbine. The Commission finds these assumptions to be reasonable.

PSD Review

PSD regulations apply to the preconstruction review of stationary sources that emit attainment air contaminants. There will not be a significant increase in such emissions and therefore, the provisions of SCAQMD Rule 1703(a)(3) are not applicable to this project. (FDOC p. 36.)

Cumulative Impacts

To evaluate reasonably foreseeable future impacts as part of the project impacts analysis, the Applicant performed a cumulative modeling analysis. The cumulative analysis included potential and/or permitted, but not yet operating, projects located up to six miles from the proposed facility site. The Applicant consulted SCAQMD to identify potential and/or permitted projects of a size that might interact with the ESPR project plumes and impacts. None was identified, so additional analysis and cumulative modeling were not conducted.

Non-local Offsets

Intervenor City of Manhattan Beach and Murphy/Perkins assert that the use of Emission Reduction Credits and banked credits, while sufficient to comply with air quality laws, are not sufficient to address the local impacts from the project's emissions under CEQA. Intervenor Murphy/Perkins introduced testimony that local emissions must be mitigated locally, and that non-local offsets are insufficient under CEQA.

Staff presented testimony following clarification of the SCAQMD's requirements for offsetting excess emissions (PM₁₀ & ozone) that the Applicant had fully offset project emission by purchasing credits from SCAQMD's banking system. Staff's testimony is that the banking system, not the individual credits, assures that CEQA-type potential direct and cumulative impacts are mitigated on a programmatic level. CEQA Guidelines provide that regional air quality programs, such as SCAQMD's emission trading/banking program, can be used to address cumulative impacts. [Staff Written Rebuttal 2/10, p. 41; CEQA Guidelines § 15064(i)(3).]

The Commission finds that the SCAQMD's emission credit banking program mitigates the potential PM₁₀ and ozone emissions of the project. Control and mitigation of these emissions are regional issues; and the emission banking system appears to be effective in addressing these regional emission problems.

FINDING

With the implementation of the Conditions of Certification below, the project conforms with applicable laws related to air quality, and all potential adverse impacts to air quality will be mitigated to insignificance.

CONDITIONS OF CERTIFICATION

AQ-C1: The project owner shall submit the resume(s) of their selected Construction Mitigation Manager(s) (CMM) to the CPM for approval. The CMM shall preferably have a minimum of 8 years experience as follows; however, the CPM will consider all resumes submitted regardless of experience:

- 5 years construction experience, as a subcontractor or general contractor.
- 1 year experience in construction project management.
- 2 year experience in air quality assessment.
- Must have an engineering degree or equivalent or an additional 5 years construction experience.

The project owner shall make available a dedicated office for the CMM. The CMM shall be responsible for implementing all mitigation measures related to construction, as outlined in Conditions of Certification for construction AQ-C1 through AQ-C4. The CMM shall be on-site or available to be on-site at any time. The CMM will be granted access to all areas of the main and related linear facility construction-sites. The CMM shall have the authority to stop construction on either the main or the related linear facility construction-sites as warranted by specific mitigation measures. The CMM position may not be terminated prior to the cessation of all construction activities unless written approval is granted by the CPM.

Verification: The project owner shall submit the CMM resume at least 60 days prior to site mobilization.

AQ-C2: The CMM shall prepare and submit for approval to the CPM, a Fugitive Dust Mitigation Plan that will specifically identify fugitive dust mitigation measures that will be employed during the construction phase of the main and related linear construction-sites. The CMM will be responsible for implementing and maintaining all measures identified in the Fugitive Dust Mitigation Plan. The Fugitive Dust Mitigation Plan must address at a minimum the following:

- the identification of the employee parking area(s) and surface of the parking area(s);
- the frequency of watering of unpaved roads;
- the application of chemical dust suppressants;
- the use of gravel in high traffic areas;
- the use of paved access aprons;
- the use of sandbags to prevent run off;
- the use of posted speed limit signs;
- the use of wheel washing areas prior to large trucks leaving the project site;
- the methods that will be used to clean tracked-out mud and dirt from the project site onto public roads;
- the transport of borrowed fill material,
 - the use of vehicle covers;
 - the use of wetting of the transported material;
 - the use of appropriate freeboard;

- the method for the stabilization of storage piles and disturbed areas;
- the use of windbreaks at appropriate locations;
- the suspension of all earth moving activities under windy conditions; and,
- the use of on-site monitoring devices.

Verification: The CMM shall submit the Fugitive Dust Mitigation Plan to the CPM for approval at least 30 days prior to site mobilization.

AQ-C3: The CMM shall prepare and submit a Diesel Construction Equipment Mitigation Plan that will specifically identify diesel engine mitigation measures that will be employed during the construction phase of the main and related linear construction-sites. The CMM will be responsible for implementing and maintaining all measures identified in the Diesel Construction Equipment Mitigation Plan. The Diesel Construction Equipment Mitigation Plan will address the following mitigation measures:

- the use of catalyzed diesel particulate filters (CDPF);
- the use of CARB certified ultra low sulfur diesel fuel, containing 15ppm sulfur or less (ULSD);
- the use of diesel engines certified to meet EPA and/or CARB 1996 or better off-road equipment emission standards; and
- the practice of restricting diesel engine idle time, to the extent practical, to no more than 10 minutes.

The Diesel Construction Equipment Mitigation Plan must include the following:

1. A list of all diesel-fueled, off-road, stationary or portable construction-related equipment to be used either on the main or the related linear construction-sites. This list will be initially estimated and then subsequently updated, as specific contractors become available. Prior to a contractor gaining access to the main or related linear construction-sites, the CMM will submit to the CPM for approval, an update of this list with regard to that contractor's diesel construction equipment.
2. Each piece of construction equipment listed under item (1) must demonstrate compliance by the following mitigation requirements with the exceptions described in items (3), (4) and (5):

Engine Size (BHP)	1996 CARB or EPA Certified Engine	Required Mitigation
< 100	NA	ULSD
> or = 100	Yes	ULSD
> or = 100	No	ULSD and CDPF, if suitable as determined by the CMM

3. If the construction equipment is intended to be operated on-site for 10 days or less, then no mitigation measures identified in item (2) are required.

4. The CPM may grant relief from the mitigation measures listed under item (2) for a specific piece of equipment if the CMM can demonstrate that they have made a good faith effort to comply with said mitigation measures and that compliance is otherwise not possible.
5. Any implemented mitigation measure in item (2) may be terminated immediately if one of the following conditions exists, however the CPM must be informed within 10 working days of the termination:
 1. The measure is excessively reducing normal availability of the construction equipment due to increased downtime for maintenance, and/or power output due to an excessive increase in back pressure.
 2. The measure is causing or is reasonably expected to cause significant engine damage.
 3. The measure is causing or is reasonably expected to cause a significant risk to nearby workers or the public.
 4. Any other seriously detrimental cause which has approval by the CPM prior to the termination being implemented.
 5. All contractors must agree to limit diesel engine idle time on all diesel-powered equipment, to the extent practical, to no more than 10 minutes.

Verification: The CMM shall submit the initial Diesel Construction Equipment Mitigation Plan to the CPM for approval at least 30 days prior to site mobilization. The CMM will update the initial Diesel Construction Equipment Mitigation Plan as necessary, no less than 10 days prior to a specific contractor gaining access to either the main or related linear construction-sites. The CMM will notify the CPM of any emergency termination within 10 working days of the termination.

AQ-C4: The CMM will submit to the CPM for approval, the Monthly Construction Compliance Report that will summarize all compliance actions taken germane to Conditions of Certification **AQ-C2** and **AQ-C3**. The Monthly Construction Compliance Report will include the following elements:

Fugitive Dust Mitigation Monthly Report (see Condition of Certification **AQ-C2**):

- Identification of each mitigation measure approved by the CPM.
- Identification of specific mitigation measure performed, the location performed, date performed and date enforced or verified as remaining effective.
- Identification of any transgressions or circumventions of mitigation measure and the actions taken to correct the situation.
- Identification of any observation by the CMM of dust plumes beyond the property boundary of the main construction-site or beyond an acceptable distance from the linear construction-site and what actions (if any) were taken to abate the plume.

Diesel Construction Equipment Mitigation Monthly Report (see Condition of Certification **AQ-C3**).

- Identification of any changes, as approved by the CPM, to the Diesel Construction Equipment Mitigation Plan from the initial report or the last monthly report including any new contractors and their diesel construction equipment.
- A copy of all receipts or other documentation indicating type and amount of fuel purchased, from whom, where delivery occurred and on what date for the main and related linear construction-sites.
- Identification and verification of all diesel engines required to meet EPA or CARB 1996 off-road diesel equipment emission standards.
- The identification of any suitability report being initiated, pursued or the completed report should be included in the monthly report (in the month that it was completed) as should the verification of any subsequent installation of a catalyzed diesel particulate filter. The suitability of the use of a catalyzed diesel particulate filter for a specific piece of construction equipment is to be determined by a qualified mechanic or engineer who must submit a report through the CMM to the CPM for approval.
- Identification of any observation by the CMM of dark plumes emanating from diesel-fired construction equipment that extend beyond the property boundary of the main construction-site or beyond an acceptable distance from the linear construction-site and what actions (if any) were taken to abate the plume or future expected plumes.

Verification: CMM shall submit to the CPM for approval, the Monthly Construction Compliance Report by the 10th day of each month while construction is occurring at the main or related linear construction-sites.

AQ-C5 The project owner shall commit specific emission reduction credits certificates for the ESPR to offset the project emissions as provided for in Table AQ-C5-1. The project owner shall not use of any ERCs to be surrendered in the Table AQ-C5-1 for purposes other than offsetting the ESPR.

TABLE AQ-C5-1 – Emission Offset Requirements

Certificate Number	Amount (lbs/day)	Pollutant
AQ003331	47	SO2
AQ003332	13	SO2
AQ003333	17	SO2
AQ003334	75	SO2
AQ003336	19	SO2
AQ003463	1	SO2
AQ003464	1	SO2
AQ004450	10	SO2
AQ004498	10	SO2
Total of Certificates Identified	193	SO2
Total to be surrendered	43	SO2
District Exempted Emission Offsets	29	SO2
Total surrendered & exempted emissions	72	SO2

AQ003327	70	VOC
AQ004580	20	VOC
AQ003722	95	VOC
Total of Certificates Identified	185	VOC
Total to be surrendered	140	VOC
TOTAL SURRENDERED EMISSIONS	140	VOC
AQ003352	6	PM10
AQ003462	2	
AQ003550	2	
AQ003568	3	
AQ004145	1	PM10
AQ004322	5	PM10
AQ004323	3	PM10
AQ004326	2	PM10
Total of Certificates Identified	24	PM10
Total to be surrendered	24	PM10
1304 Exempted Emission Offsets	173	PM10
Priority Reserve Purchased	291	PM10
Priority Reserve from District	58	PM10
Total surrendered & exempted emissions	546	PM10

The project owner shall request from the District a report of the NSR Ledger Account for the ESPR after the District has granting the ESPR a Permit to Construct. Such report to specifically identify the ERCs, Priority Reserve Credits and Rule 1304 Exempted Emissions used to offset the project emissions. The project owner shall submit this report to the CPM prior to turbine first fire.

Verification: No more than 15 days following the issuance of the District's Permit to Construct, the project owner shall request from the District the report of the NSR Ledger Account for the ESPR. The project shall submit the report of the NSR Ledger Account for the ESPR to the CPM no less than 30 days prior to turbine first fire.

AQ-1 Deleted.

Conditions of Certification AQ-2 through AQ-27, pertain to the following equipment:

- 1,896 MMBTU/HR Gas Turbine (ID No. D46) (A/N 378766) No. 5 GE Model 7241FA with Dry Low NOx combustors and steam injection for power augmentation connected directly to a 179 MW (nominal) Electric Generator (ID No. B47) and a Heat Recovery Steam Generator (ID No. B49) with 600 MMBTU/HR Duct Burners (ID No. D48) connected in common with Gas Turbine No. 7 to a 288 MW (nominal) steam turbine (ID No. B50). Selective Catalytic Reduction (ID No. C52) (A/N 378771) with 4379 cubic feet of total volume, with an ammonia injection grid (ID No. B53) and a CO oxidation catalyst (ID No.

C51) with 1000 cubic feet of total volume connected to an exhaust stack (ID No. S54) (A/N 378771) No 5.

2. 1,896 MMBTU/HR Gas Turbine (ID No. D55) (A/N 378767) No. 7 GE Model 7241FA with Dry Low NOx combustors and steam injection for power augmentation connected directly to a 179 MW (nominal) Electric Generator (ID No. B56) and a Heat Recovery Steam Generator (ID No. B58) with 600 MMBTU/HR Duct Burners (ID No. D57) connected in common with Gas Turbine No. 5 to a 288 MW (nominal) steam turbine (ID No. B59). Selective Catalytic Reduction (ID No. C61) (A/N 378773) with 4379 cubic feet of total volume, with an ammonia injection grid (ID No. B62) and a CO oxidation catalyst (ID No. C60) with 1000 cubic feet of total volume connected to an exhaust stack (ID No. S63) (A/N 378773) No 7.

AQ-2: The operator shall install and maintain a flow meter to accurately indicate the flow rate of the total hourly throughput of injected ammonia (NH₃) to the SCR in combined cycle turbines 5 and 7. The operator shall also install and maintain a device to continuously record the parameter being measured. The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every twelve months.

Verification: The project owner shall make the site available for inspection by representatives of the District, California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA) and the California Energy Commission (Commission).

AQ-3: The operator shall install and maintain a temperature gauge to accurately indicate the temperature in the exhaust at the inlet to the SCR reactor in combined cycle turbines 5 and 7. The operator shall also install and maintain a device to continuously record the parameter being measured. The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every twelve months.

Verification: The project owner shall make the site available for inspection by representatives of the District, California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA) and the California Energy Commission (Commission).

AQ-4: The operator shall install and maintain a pressure gauge to accurately indicate the differential pressure across the SCR catalyst bed in inches water column in combine cycle turbines 5 and 7. The operator shall also install and maintain a device to continuously record the parameter being measured. The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every twelve months.

Verification: The project owner shall make the site available for inspection by representatives of the District, California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA) and the California Energy Commission (Commission).

AQ-5: The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutants To be Tested	Test Method	Averaging Time	Test Location
NH3 Emissions	District Method 207.1 and 5.3 or EPA Method 17	1 hour	Outlet of SCR serving this equipment

The test shall be conducted at least quarterly during the first twelve months of operation and at least annually thereafter. The NOx concentration, as determined by the CEMS, shall be simultaneously recorded during the ammonia slip test. If the CEMS is inoperable, a test shall be conducted to determine the NOx emissions using District Method 100.1 measured over a 60 minute averaging time period.

Verification: The project owner shall submit the proposed protocol for the source tests 60 days prior to the proposed source test date to both the District and CPM for approval. The project owner shall notify the District and CPM no later than 7 days prior to the proposed source test date and time. The project owner shall submit source test results no later than 45 days following the source test date to both the District and CPM.

AQ-6: The operator shall conduct start-up source test(s) for the pollutant(s) identified below on combined-cycle turbine units 5 and 7.

Pollutants To be Tested	Required Test Method	Averaging Time	Test Location
NOx Emissions	District Method 100.1	1 hour	Outlet of SCR serving this equipment
CO Emissions	District Method 100.1	1 hour	Outlet of SCR serving this equipment
SOx Emissions	Approved District & CPM Method	1 hour	Outlet of SCR serving this equipment
ROG Emissions	Approved District Method	1 hour	Outlet of SCR serving this equipment
PM Emissions	Approved District & CPM Method		Outlet of SCR serving this equipment
NH3 Emissions	District Method 207.1 and 5.3 or EPA Method 17	1 hour	Outlet of SCR serving this equipment

The test shall be conducted after District and CPM approval of the source test protocol, but no later than 180 days after initial start-up.

The test shall be conducted to determine the oxygen levels in the exhaust. In addition, the tests shall measure the fuel flow rate (CFH), the flue gas flow rate, and the turbine and steam turbine generating output in MW.

The test shall be conducted in accordance with a District and CPM approved source test protocol. The protocol shall be approved by the District and CEC before the test commences. The test protocol shall include the proposed operating conditions of the turbine

during the tests, the identity of the testing lab, a statement from the testing lab certifying that it meets the criteria of District Rule 304, and a description of all sampling and analytical procedures.

The test shall be conducted with and without duct firing, when this equipment is operating at loads of 100, 75, and 50 percent of maximum load.

Verification: The project owner shall submit the proposed protocol for the initial source tests 45 days prior to the proposed source test date to both the District and CPM for approval. The project owner shall submit source test results no later than 60 days following the source test date to both the District and CPM. The project owner shall notify the District and CPM no later than 10 days prior to the proposed initial source test date and time.

AQ-7: The operator shall conduct source test(s) for the pollutant(s) identified below on combined cycle turbine units 5 and 7.

Pollutants to be Tested	Required Test Method	Averaging Time	Test Location
SOx Emissions	Approved District & CPM Method	1 hour	Outlet of SCR serving this equipment
ROG Emissions	Approved District Method	1 hour	Outlet of SCR serving this equipment
PM Emissions	Approved District & CPM Method		Outlet of SCR serving this equipment

Verification: The project owner shall submit the proposed protocol for the source tests 60 days prior to the proposed source test date to both the District and CPM for approval. The project owner shall notify the District and CPM no later than 7 days prior to the proposed source test date and time. The project owner shall submit source test results no later than 45 days following the source test date to both the District and CPM.

AQ-8: The operator shall provide to the District and CPM any source test report in accordance with the following specifications:

- Source test results shall be submitted to the District and CPM no later than 60 days after the source test was conducted.
- Emission data shall be expressed in terms of concentration (ppmvd), corrected to 15 percent oxygen (dry basis), mass rate (lbs/hr), and lbs/MM cubic feet. In addition, solid PM emissions, if required to be tested, shall also be reported in terms of grains per DSCF.
- All exhaust flow rate shall be expressed in terms of dry standard cubic feet per minute (DSCFM) and dry actual cubic feet per minute (DACFM).
- All moisture concentration shall be expressed in terms of percent corrected to 15 percent oxygen.

- Source test results shall also include the oxygen levels in the exhaust, the fuel flow rate (CFH), the flue gas temperature, and the generator power output (MW) under which the test was conducted.

Verification: See verifications for **AQ-5, -6, and -7.**

AQ-9: The project owner shall submit to the Commission, Quarterly Operational Reports that include the fuel use associated with each gas turbine train (both gas turbine and duct burner), in addition to the CO and NO_x CEMS recorded data for each gas turbine exhaust stack on an hourly basis in order to verify the following emissions limits.

Except during start-up, shutdown and initial commissioning, emissions from each gas turbine exhaust stack shall not exceed the following limits:

NO_x (measured as NO₂): ~~2.5~~ **2.0** ppm at 15% oxygen on a dry basis averaged over one hour and 18.27 lbs/hour.
 CO: ~~6~~ **4** ppm at 15% oxygen on a dry basis averaged over 1 hour and 11.12 lbs/hr.
 SO_x (measured as SO₂): 1.76 lbs/hr
 VOC: 6.37 lbs/hr
 PM₁₀: 15.0 lbs/hr
 Ammonia: 5 ppm at 15% oxygen on a dry basis.

Verification: The project owner shall submit the Quarterly Operational Reports as specified herein to the CPM no later than 30 days following the end of each calendar quarter.

AQ-10: The operator shall vent the combined cycle turbine units 5 and 7, as well as their associated duct burners to the CO oxidation and SCR control whenever this equipment is in operation.

Verification: The project owner shall make the site available for inspection by representatives of the District, California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA) and the California Energy Commission (Commission).

AQ-11: The operator shall limit emissions from this equipment as follows:

Contaminant	Emissions Limit
CO	20,566 LBS IN ANY 1 MONTH
PM ₁₀	20,336 LBS IN ANY 1 MONTH
VOC	7,588 LBS IN ANY 1 MONTH
Sox	2,342 LBS IN ANY 1 MONTH

The operator shall calculate the emission limit(s) by using monthly fuel use data and the following emission factors: PM₁₀ 6.26 lbs/MMscf, VOC 2.39 lbs/MMscf, and SO_x 0.72 lbs/MMscf. Written records of startups shall be maintained and made available to the District.

The operator shall calculate the emission limit(s) for CO, during the commissioning period using fuel use data and the following emissions factors: 501 lbs/MMscf during the full speed

no load tests and the part load tests when the turbine is operating at or below 60 percent load, and 14 lbs/MMscf during the full load tests when the turbine is operating above 60 percent load.

The operator shall calculate the emission limit(s) for CO, after the commissioning period and prior to the CO CEMS certification, using fuel use data and the following emission factors: 100 lbs per startup and 4.55 lbs/MMscf for all other operations.

The operator shall calculate the emission limit(s) for CO, after the CO CEMS certification, based on readings from the certified CEMS. In the event the CO CEMS is not operating or the emissions exceed the valid upper range of the analyzer, the emissions shall be calculated in accordance with the approved CEMS plan.

For the purposes of this condition, the limit(s) shall be based on the total combined emissions from gas turbine No. 5 and No. 7.

Verification: The project owner shall submit the monthly fuel use data and emission calculations to the CPM in the Quarterly Operation Reports (AQ-9).

AQ-12: The operator shall keep records, in a manner approved by the District, for natural gas fuel use during the commissioning period.

Verification: The project owner shall make the site available for inspection by representatives of the District, California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA) and the California Energy Commission (Commission).

AQ-13: The operator may, at its discretion, choose not to use ammonia injection if the following requirement is met:

- The inlet exhaust temperature to the SCR is 450 degrees F or less, not to exceed 3 hours during a cold startup, 2 hours during a warm startup, and 1 hour during a hot startup.

Verification: The project owner shall make the site available for inspection by representatives of the District, California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA) and the California Energy Commission (Commission).

AQ-14: The operator shall install and maintain a CEMS to measure CO concentration in ppmv. Concentrations shall be corrected to 15 percent oxygen on a dry basis. The CEMS will convert the actual CO concentrations to mass emission rates (lbs/hr) and record the hourly emission rates on a continuous basis. The CEMS shall be installed and operated, in accordance with an approved District Rule 218 CEMS plan application. The operator shall not install the CEMS prior to receiving initial approval from District. The CO CEMS shall be installed and operated within 90 days after the initial start-up (first firing) of the gas turbines. The CEMS shall be installed and operated to measure CO concentration over a 15 minute averaging time period.

Verification: The project owner shall make the site available for inspection by representatives of the District, California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA) and the California Energy Commission (Commission).

AQ-15: The operator shall install and maintain a CEMS to measure NO_x concentration in ppmv. Concentrations shall be corrected to 15 percent oxygen on a dry basis. The CEMS shall be installed and operating no later than 12 months after initial start-up of the turbine and shall comply with the requirements of Rule 2012. During the interim period between the initial start-up and the provisional certification date of the CEMS, the operator shall comply with the monitoring requirements of Rule 2012(h)(2) and 2012(h)(3). Within two weeks of the turbine startup date, the operator shall provide written notification to the District of the exact date of start-up.

Verification: The project owner shall make the site available for inspection by representatives of the District, California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA) and the California Energy Commission (Commission).

AQ-16: The ~~2.5~~ 2.0 PPM NO_x emission limit(s) shall not apply during turbine commissioning and startup periods. Startup time shall not exceed 3 hours per day. The commissioning period shall not exceed 33 operating days from the date of initial start-up. The operator shall provide the AQMD with written notification of the start-up date. No more than one turbine shall be in start-up mode at any one time. Written records of commissioning and start-ups shall be maintained and made available upon request from AQMD.

Verification: The project owner shall make the site available for inspection by representatives of the District, California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA) and the California Energy Commission (Commission).

AQ-17: The ~~6.4~~ PPM CO emission limit(s) shall not apply during turbine commissioning and start-up periods. Start-up time shall not exceed 3 hours per day. The commissioning period shall not exceed 33 operating days from the date of initial start-up. The operator shall provide the AQMD with written notification of the initial start-up date. No more than one turbine shall be in start-up mode at any one time. Written records of commissioning and start-ups shall be maintained and made available upon request from AQMD.

Verification: The project owner shall make the site available for inspection by representatives of the District, California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA) and the California Energy Commission (Commission).

AQ-18: The 109 LBS/MMCF NO_x emission limit(s) shall only apply during the turbine commissioning period during the full speed no-load tests and the part-load tests when the turbine is operating at or below 60% load to report RECLAIM emissions.

Verification: The project owner shall make the site available for inspection by representatives of the District, California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA) and the California Energy Commission (Commission).

AQ-19: The 33.9 LBS/MMCF NO_x emission limit(s) shall only apply during the turbine commissioning period during the full load tests when the turbine is operating above 60% load to report RECLAIM emissions. This emission limit shall also apply during the interim reporting period to report RECLAIM emissions. The interim reporting period shall not exceed 12 months from the initial start-up date.

Verification: The project owner shall make the site available for inspection by representatives of the District, California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA) and the California Energy Commission (Commission).

AQ-20: The 80 lbs/hour NO_x emission limit(s) shall only apply during turbine start-ups. Only one turbine shall be in start-up mode at any one time. Start-ups shall not exceed 3 hours per day per turbine.

Verification: The project owner shall submit CEMS records demonstrating compliance with this condition as part of the Quarterly Operational Report required in **AQ-9**.

AQ-21: The 102 LBS/MMCF NO_x emission limit(s) shall only apply to report RECLAIM emissions during the interim period for the duct burner. The interim reporting period shall not exceed 12 months from the initial start-up date.

Verification: The project owner shall make the site available for inspection by representatives of the District, California Air Resources Board (CARB), the United States Environmental Protection Agency (EPA) and the California Energy Commission (Commission).

AQ-22: For the purpose of the following condition numbers, the phrase “continuously record” shall be defined as recording at least once every hour and shall be calculated based upon the average of the continuous monitoring for that hour.

Condition no. **AQ-2**

Condition no. **AQ-3**

Condition no. **AQ-24**

Verification: See verifications for **AQ-2**, **-3**, and **-24**.

AQ-23: For the purpose of the condition number **AQ-4**, the phrase “continuously record” shall be defined as recording at least once every hour and shall be calculated based upon the average of the continuous monitoring for that month.

Verification: See verifications for **AQ-4**.

AQ-24: The ~~2.5~~ 2.0 PPMV NO_x emission limit(s) are averaged over 60 minutes at 15 percent oxygen, dry.

Verification: The project owner shall submit CEMS records demonstrating compliance with this condition as part of the Quarterly Operational Report required in **AQ-9**.

AQ-25: The ~~6~~ 4 PPMV CO emission limit(s) are averaged over 60 minutes at 15 percent oxygen, dry.

Verification: The project owner shall submit CEMS records demonstrating compliance with this condition as part of the Quarterly Operational Report required in **AQ-9**.

AQ-26: The 5 PPMV NH₃ emissions limit(s) are averaged over 60 minutes at ~~3~~ 15 percent O₂, dry. ~~The operator shall calculate and continuously record the NH₃ slip concentration using the following:~~

- ~~_____ NH₃ (ppmv) = [a-(b*c/1000000)]*1000000/b, where~~
- ~~_____ a = ammonia injection rate (lb/hr)/17 (lbs/lb-mole)~~
- ~~_____ b = dry exhaust gas flow rate (lb/hr)/29 (lbs/lb-mole)~~
- ~~_____ c = change in measured NO_x across the SCR (ppmv, dry basis)~~

~~The operator shall install and maintain a NO_x analyzer, or other method as approved by the District, to measure the SCR inlet NO_x ppm accurate to within +/- 5 percent calibrated at least every 12 months.~~

Verification: The project owner shall submit CEMS records and all calculations demonstrating compliance with this condition as part of the Quarterly Operational Report required in **AQ-9**.

AQ-27: This equipment shall not be operated unless the operator demonstrates to the Executive Officer and the CPM that the facility holds sufficient RTCs to offset the prorated annual emissions increase for the first compliance year of operation. In addition, this equipment shall not be operated unless the operator demonstrates to the Executive Officer and the CPM that, at the commencement of each compliance year after the first compliance year of operation, the facility holds sufficient RTCs in an amount equal to the annual emissions increase.

Verification: The project owner shall submit to the CPM copies of all RECLAIM reports filed with the District in each Quarterly Operational Report (see **AQ-9**).

Condition of Certification **AQ-28**, below, pertains to the following equipment:

Internal combustion engine, emergency fire pump, diesel Clarke, Model JDFP 06WA, turbocharged, aftercooled, 265 BHP A/N 378769 (ID. No. D45).

AQ-28 The operator shall limit the operating time to no more than 199 hours in any one year.

- To comply with this condition, the operator shall install and maintain a non-resettable elapsed time meter to accurately indicate the elapsed operating time of the engine.
- The operator shall maintain records in a manner approved by the District to demonstrate compliance with this condition.
- The records shall include, date of operation, the elapsed time in hours, and the reason for operation. Records shall be kept and maintained on file for a minimum of 5 years and made available to AQMD upon request.

Verification: The project owner shall submit the recorded data specified in this condition on an annual basis as part of the fourth Quarter Operational Report (see **AQ-8**).

Condition of Certification **AQ-29**, below, pertains to the following equipment:

Underground Aqueous Ammonia Storage Tank, TK-001, carbon steel, double walled with three transfer pumps and a PVR set at 50 PSIG, 20,000 gallons capacity. A/N 379904 (I.D. No. D30)

AQ-29 The operator shall install and maintain a pressure relief valve set at 50 psig.

Verification: The project owner shall make the site available for inspection by representatives of the District, CARB, EPA, and the Energy Commission.

LAWS, ORDINANCES, REGULATIONS & STANDARDS

AIR QUALITY

APPLICABLE LAW	DESCRIPTION
FEDERAL	
Clean Air Act §111: 42 USC §7411; 40 CFR Part 60, subparts Db and GG	Establishes standards of performance to limit the emission of criteria pollutants for which the EPA has established national ambient air quality standards (NAAQS).
Clean Air Act §112 42 USC §7412; 40 CFR Part 63	Establishes national emission standards to limit hazardous air pollutant (HAP) emissions from existing major sources of HAP emissions in specific source categories.
Clean Air Act §160-169A 42 USC §7470-7491; 40 CFR Parts 51 & 53	Requires pre-construction review and permitting of new or modified major stationary sources of air pollution to prevent significant deterioration of ambient air quality. PSD applies only to pollutants for which ambient concentrations do not exceed the corresponding NAAQS (i.e., attainment pollutants).
Clean Air Act §171-193 42 USC 501 et seq.; 40 CFR Parts 51 & 52	Requires pre-construction review and permitting of new or modified major stationary sources of air pollution to allow industrial growth without interfering with the attainment of ambient quality standards.
Clean Air Act §401 42 USC 654 et seq.; 40 CFR Part 72	Requires monitoring and reduction of emissions of acidic compounds and their precursors. The principal source of these compounds is the combustion of fossil fuels. Therefore, Title IV established national standards to limit SO _x and NO _x emissions from electrical power generating facilities.
Clean Air Act §501 (Title V) 42 USC §7661; 40 CFR Part 70	Requires the issuance of operating permits that identify all applicable federal performance, operating, monitoring, record-keeping and reporting requirements. Title V applies to major facilities, acid rain facilities, subject solid waste incinerator facilities, and any facility listed by EPA as requiring a Title V permit.
Clean Air Act 501 (Title V) 42 USC §7414; 40 CFR Part 64	Requires facilities to monitor the operation and maintenance of emissions control systems and report any control system malfunctions to the appropriate regulatory agency.

Emergency Planning and Community Right-to-Know Act § 313 (EPCRA)	EPCRA requires certain facilities and establishments to report toxic releases to the environment if they: 1. Manufacture more than 25,000 lbs. of a listed chemical per year; 2. Process more than 25,000 lbs. of a listed chemical per year; or 3. Otherwise use more than 10,000 lbs. of a listed chemical per year.
STATE	
Health & Safety Code (H&SC) §39500 et seq.	Required by the Clean Air Act, the State Implementation Plan (SIP) must demonstrate the means by which all areas of the state will attain NAAQS within the federally mandated deadlines.
H&SC §40910-40930	The California Clean Air Act requires local Air Pollution Control District's (APCD) to attain and maintain both national and state AAQS at the earliest practicable date.

APPLICABLE LAW AIR QUALITY	DESCRIPTION
H&SC §39650-39675	The Toxic Air Contaminant Identification and Control Act created a two-step process to identify toxic air contaminants (TAC) and control their emissions. The ARB identifies and prioritizes the pollutants to be considered for identification as Tacos. The ARB then assesses the potential for human exposure to a substance while the Office of Environmental Health Hazard Assessment evaluates the corresponding health effects.
California Public Resources Code §25523(a); 20 CCR §§1752, 1752.5, 2300-2309, and Div. 2 Chap. 5, Art.1, Appendix B, Part(k)	Establishes requirements in the Sec's decision making process on an application for certification that assures protection of environmental quality.
LOCAL	
SCAQMD Regulation 2 Rule 1	Requires an Authority to Construct (ATC and Permit to Operate (PTO) from the air district, as well as the requirement to obtain emission reduction credits.
SCAQMD Regulation 2 Rule 2 – New Source Review (NSR)	Establishes the criteria for siting new and modified emission sources.
SCAQMD Regulation 6-301.	Prohibits visible emissions as dark as or darker than No. 1 on the Ringelmann chart.
SCAQMD Regulation 6-310	Limits particulate emissions to 0.15 grains per cubic foot of gas at dry standard conditions (gr/DSCF).
SCAQMD Regulation 9 Rule 9	Limits NO _x emissions to 9ppm at 15% O ₂ .
SCAQMD Regulation 9 Rule 1.	Limits SO ₂ ground-level concentrations and requires monitoring.

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BIOLOGY – Summary of Findings and Conditions

	POWER PLANT SITE	CUMULATIVE IMPACTS	LORS COMPLIANCE
Protected Species Impact	None	None	YES
	<p>The power plant site, located within the fenced boundary of the existing El Segundo Generating Station, does not contain protected species or their habitat. The water supply pipelines are being installed only under paved roadways. The project utilizes an already installed, permitted and operating cooling system that draws seawater from and discharges warmed seawater to the Santa Monica Bay. The operation of this cooling system has not historically had an impact on protected species and receives a regular re-evaluation as part of its NPDES permit renewal.</p> <p><i>References: AFC §5.6, Applicant's Writ. Test., Exh. B, p.3.</i></p>		
Long-term Habitat Loss/Degradation	None	None	YES
	<p>The proposed project will be constructed on the existing generating site and will not affect any habitat. See Aquatic Biology below.</p> <p><i>Reference: Applicant's Writ. Test., Exhibit B, and Rbtl. Test. pp. 22-24.</i></p>		
Short-term Construction Disturbance	None	None	YES
	<p>No species or habitat will be disturbed by construction of the project and its associated pipelines or the use of offsite lay down areas.</p> <p><i>References: AFC p. 5.6-29, FSA Bio. Res., p. 4.2-31-32.</i></p>		

Operation Impact	CONDITION	None	CONDITION
	<p>Noise, light, and wastewater discharge resulting from the operation of the project will not impact any species or habitat.</p> <p><u>Aquatic Biology:</u> The ocean cooling system capacity would not increase as a result of the proposed project <u>nor would the amount of water used by the system</u>. The cooling system is permitted by the LARWQCB to utilize up to 208 <u>207</u> million gallons of seawater per day. New pending regulations under section 316(b) of the federal Clean Water Act may result in required changes to the system including possible reduction in maximum allowed flows per day. The proposed project includes a flow cap that would restrict flows in the cooling system to recent historical annual averages, plus a 3-month seasonal flow cap. <u>In line with the section 316(b) requirements, project entrainment impacts must be reduced by at least 60% below unmitigated flows prior to commercial operation.</u> These <u>requirements</u> would remain in place until the time that the NPDES permit is modified pursuant to new 316(b) regulations. For these reasons, the facility would not cause a physical change to the existing environmental setting and thus would not significantly impact biological resources through the operation of the ocean cooling system.</p> <p>Further, the project appears to comply with <u>meets the objectives of</u> the California Coastal Act <u>to maintain, enhance, and where feasible restore the marine environment</u> by maintaining the existing environmental setting, restoring partially the Santa Monica Bay by payment to the Restoration Commission, and enhancing the aquatic environment by demonstrating the feasibility of an aquatic filter barrier at the project intake site, <u>and minimizing entrainment impacts by reducing entrainment by 60 or more following an appropriate 316(b) study.</u></p> <p>CONDITIONS:</p> <ul style="list-style-type: none"> ☑ The project owner shall transfer \$1,000,000 in trust to the Santa Monica Bay Restoration Commission. Condition: BIO-1. ☑ The project owner shall evaluate the feasibility of utilizing aquatic filter barrier technology to eliminate entrainment impacts at ESGS and, if feasible, install the filter barrier at the project intake. Condition: BIO-2. ☑ The project owner shall limit total annual flow at ESGS to 439 <u>126.78</u> billion gallons per year and during February, March and April. Condition: BIO-3 ☑ <u>The project owner shall conduct a 316(b) study and limit entrainment impacts by at least 60% and impingement impacts by 80% prior to commercial operation. Condition BIO-4.</u> <p><i>Reference: AFC p. 5.6-28-32; FSA Biological Res., p. 4.2-28,29.</i></p>		

BIOLOGY - GENERAL

The proposed project and ancillary facilities would be constructed within a developed portion of the existing El Segundo Generating Station (ESGS). This area consists of paved and gravel roads, ornamental iceplant and other ornamental vegetation, and ruderal (weedy) plant species. ~~There are~~ No sensitive plant or animal species exist on the ESGS site. (AFC p. 5.6-18-23; FSA Biological Res., p. 4.2-6.)

The proposed project would also include use of the existing, operating cooling system #1 that withdraws and discharges seawater to/from the Santa Monica Bay. The operation of this once-through cooling system has the potential to impact aquatic organisms through impingement, entrainment, and thermal effects. Cooling system capacity would not be increased because of the project. The cooling system is permitted and operates under the authority of the responsible agency, the Los Angeles Regional Water Quality Control Board (LARWQCB) through the issuance of a National Pollution Discharge Elimination System (NPDES) permit. The project also is located within the California Coastal Zone and, as such, is subject to the provisions of the California Coastal Act.

Protected Species Impact

The proposed power plant site, and substation ~~are proposed to~~ would be located ~~on~~ within the existing ESGS site. The proposed facility would be located where Units 1 and 2 currently stand. Part of the footprint of the new facility would extend into paved areas and ornamental vegetation. The proposed power plant, staging and laydown sites do not contain any native or sensitive plant species, and no sensitive animal species or their habitat occurs on-site. Therefore, no protected species are impacted by the project. (AFC p. 5.6-18-23; SA Biological Res., p. 4.2-6.)

The proposed project would utilize once-through cooling with seawater. The cooling system that currently provides cooling for units 1 and 2 would be utilized for the proposed project. Thus, the project does not contemplate a new cooling system. The history and expectations of the operation of this cooling system do not include impacts to protected species. (AFC§5.6; Applicant's Writ. Test., Exh. B; Applicant's Rpl. Test. pp. 15-28.)

Long-Term Habitat Loss/Degradation

The power plant site is either paved or un-vegetated, planted with ornamental vegetation and has no biological resources. Therefore, as to the site, no habitat resource is being lost or degraded. By constructing the proposed power plant on the existing generating site, the project will not cause any long-term habitat loss or degradation. (AFC p. 5.6-18-23; SA Biological Res., p. 4.2-6.) See discussion below regarding Aquatic Biology.

Short-term Construction Disturbance

The project site, located within the fenced boundary of the existing ESGS is un-vegetated soil, gravel-covered or paved areas and devoid of biological resources. Thus, there will be no

on-site disturbance of biological resources during construction of the power plant. The associated pipelines run entirely within paved roads and proposed offsite staging and laydown areas are paved, gravel covered or otherwise devoid of biological resources. (AFC p. 5.6-29; FSA Bio. pp. 4.2-31-32.)

Operation Impact

This topic centers on two key issues: 1) project compliance with applicable LORS, particularly the federal Clean Water Act and the California Coastal Act; and 2) the proper application of the California Environmental Quality Act (CEQA), including the project's potential for significant environmental impacts.

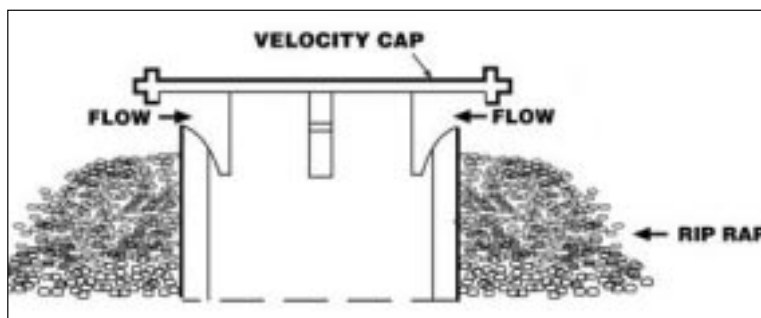
Operation of the proposed project would not cause a significant impact on any riparian habitat or local vegetation. (AFC 5.6-29-32; FSA Bio., p. 4.2-6.)

Aquatic Biology

The proposed project would include use of the existing, operating cooling system (intake #1) that withdraws and discharges seawater from/to Santa Monica Bay. The existing intake and discharge (for Units 1 and 2) are located approximately 2,590 and 1,989 feet, respectively, offshore at a depth of 32 feet Mean Lower Low Water (MLLW). These intake and discharge structures are located about 240 feet north of similar intake and discharge structures for El Segundo Units 3 and 4.



Cooling water will be withdrawn from the ocean by an existing vertical intake riser, approximately 11 feet by 14 feet, covered by a velocity cap positioned 3 feet above the riser mouth. Ocean water is conveyed through a 2,500-foot long, 10-foot diameter pipe into a large forebay (holding pool) adjacent to the generating plant. From there, the seawater is withdrawn as needed through a screened intake device, passing through the power plant's steam condenser, and discharged through the outfall structure. During normal, full-load operation, the seawater is heated in the condenser by as much as 22 degrees Fahrenheit (F) and then discharged through a 10-foot diameter outfall pipe at a depth of 26 feet. The



discharge temperature is about 20 degrees F above ambient ocean temperature.

Periodically, power plant cooling water is heated further (100° F) and recirculated back into the forebay in a "heat treatment" process to kill organisms that may foul the ocean water intake pipe, forebay, intake screens

and the cooling system.

The existing cooling water system operates pursuant to an NPDES permit issued, and subject to 5-year renewal, by the Los Angeles Regional Water Quality Control Board (LARWQCB), which is a regional state agency exercising a federalized function under the federal Clean Water Act. The current NPDES permit is ~~subject to expiration due to expire~~ on June 29, 2005. The current NPDES permit authorizes ocean water withdrawal of 207 million gallons per day (mgd). For various reasons, the average flow rates have declined substantially for more than a decade to well below the permitted level.

Aquatic Biology

The El Segundo project is located on Santa Monica Bay, which is a significant aquatic resource, not only for its environmental value but also its economic value to California. Santa Monica Bay enjoys heightened public and governmental agency concern about its potential further environmental deterioration from various potential causes.

Applicant proposes that the project, ~~which uses the existing ocean-cooling water system, use once-through cooling water for the new generating Units 5, 6, and 7 by using the existing cooling water intake and discharge system which currently provides cooling water for existing Units 1 and 2. (Intake No. 1) No physical modification of the intake and outfall is proposed. Applicant initially proposed to~~ operate ~~the project at 207 million gallons per day~~ under the existing NPDES permit that was issued in 2000 by the ~~Regional Water Board~~ LARWQCB following an environmental review. The existing NPDES permit finds that the existing cooling water intake system complies with applicable laws and “ecological impacts of the intake system were of an environmentally acceptable order.” (ESGS NPDES Permit Finding 8.)

In its review of the project, Staff, together with agencies it has contacted and environmental intervenors, has asserted that the power plant project may cause significant adverse direct impacts and will cause significant cumulative impacts to the aquatic environment. (FSA Bio., pp. 27-36)

At the center of Staff's assertion is its claim that, in the absence of the Applicant's performing a new and site-specific 316(b) study ~~of project effects~~, the Energy Commission is prevented from finding that the project will not have potential significant adverse environmental impacts. “A 316(b) study” derives its name from the federal Clean Water Act and is both an in-ocean sampling and analytical effort which has been used by, in this case, the LARWQCB to assess the potential impacts in the issuance of an NPDES permit. From the inception of these proceedings, Staff has asked the Applicant to perform ~~this type of El Segundo-specific, year-long, million dollar study before Staff would consider that it had a site specific 316(b) study. Such a study would take a year to complete and cost approximately a million dollars. Staff stated it needed the results of such a study to obtain~~ the appropriate information to begin its independent environmental review. Other agencies, including the California Coastal Commission, the National Marine Fisheries Service, and California Department of Fish and Game, have joined in Staff's call for a new 316(b) study. (Staff Opening Brief, p. 8.)

The 316(b) study used by the LARWQCB to renew the existing NPDES permit is a “proxy” study, prepared initially in 1982. When Southern California Edison (SCE) owned various

coastal power plants, SCE's original 316(b) study at the Ormond Beach facility and its updates were applied to similarly situated coastal plants, such as El Segundo, for the purpose of NPDES permitting and their renewal. As a result of deregulation, SCE was required to sell these coastal plants in the late 1990's to non-utility owners, such as this Applicant. The Applicant purchased the plant in 1998 and filed its AFC in December 2000 which began the review by Staff.

Issues

~~The Commission finds that the aquatic biology issues center on following:~~

- ~~1. Project compliance with applicable LORS, particularly the Clean Water Act and the California Coastal Act.~~
- ~~2. The proper application of the California Environmental Quality Act (CEQA), and any potential for significant environmental impacts.~~

Clean Water Act

~~Section 316(b) of the federal Clean Water Act requires that a seawater cooling water intake system reflect the best technology available for minimizing adverse environmental impacts.~~

~~The current, valid NPDES permit issued for the ESGS by the Los Angeles Regional Water Quality Control Board in 2000 is evidence of compliance with this federal LORS.~~

CEQA's Environmental Impact Analysis

~~The project would use once-through cooling water for the new generating units 5, 6, and 7 by using the existing cooling water intake and discharge system which provides cooling water for existing units 1 and 2. No physical modification of the intake and outfall is proposed.~~

~~As originally proposed, the project would use cooling water up to the NPDES permit limit of 207 mgd.~~

~~Appropriately,~~ When it began its review, Staff obtained historical cooling water usage data to establish a "baseline" under CEQA Guidelines section 15125. Since the project proposed to increase flows from the recent historical average to the NPDES limit, the greater flows would cause a physical change to the "existing" environment, with the potential to cause significant impacts.

On that basis, Staff ~~pressed requested that~~ the Applicant to prepare a new 316(b) study specifically for the El Segundo site, instead of relying on "proxy" studies which the CEC staff considered to be "stale" due to their age of the analyses and subsequent improvement of the fact that sampling and study ~~methodology and well as inappropriate due to their distance from methodologies have improved in the last 20 years.~~ Staff was equally concerned about the appropriateness of relying on studies that were performed not in close proximity to the El Segundo site.

The Applicant declined to conduct ~~the year-long, million-dollar a new~~ 316(b) study for the Staff and presented several other proxy studies to further support the analysis provided in the Ormond Beach 316(b) study and updates which was the basis for the NPDES permit and the LARWQCB's finding in the 2000 NPDES permit that "ecological impacts of the intake structure were of an environmentally acceptable order." (LARWQCB NPDES Permit for Intake # 1, Finding No. 8)

~~In response, the CEC Staff presented its Final Staff Assessment analysis~~ believed that the project would cause unmitigated adverse biological impacts. Specifically, "the entrainment, impingement and thermal effects on fish and invertebrates from the project's once through cooling system would cause unmitigated direct adverse impacts to marine organisms that may be significant and cumulative impacts that are significant." Further, Staff stated, "Because the Applicant has provided unreliable recent scientific information concerning the extent of adverse entrainment impacts on fish larvae and other plankton species, staff cannot determine the scope and magnitude of the project's *direct* impacts at this time. However, the waters of Santa Monica Bay and the Southern California Bight are already experiencing serious degradation in a number of marine organisms, and the unmitigated entrainment, impingement, and thermal impacts of the proposed project will cause significant *cumulative* adverse biological impacts to marine organisms." (FSA 8/02 Biological Resources, p. 4.2-1.)

Several other agencies and intervenors representing Santa Monica Bay environmental interests joined with the Staff.

After the Staff published the foregoing analysis in its FSA, the Applicant effectively amended the project, including its operations, by proposing three conditions (below) to be included in any certification. The following proposed conditions were initially introduced by the Applicant at the Prehearing Conference and later at the Evidentiary Hearings (2/18/02 RT 82:17-86:15):

- **\$1 Million to Santa Monica Bay Restoration Commission**

Applicant will place \$1,000,000 in trust to the Santa Monica Bay Restoration Commission to be used to improve the understanding of the biological dynamics of the Bay and to improve the health of the Bay habitat. This work could include fish population studies, entrainment studies, or other studies approved by the Santa Monica Bay Restoration Commission that focus on the Santa Monica Bay habitat. The funds would be administered by the Santa Monica Bay Restoration Commission. (BIO-1.)

- **Aquatic Filter Barrier Feasibility Study**

Applicant would conduct a study to determine the feasibility of constructing, deploying, and operating a Gunderboom Marine Life Exclusion System™ at intake #1 at ESGS. The feasibility study shall also determine expected benefits and potential impacts of the Gunderboom Marine Life Exclusion System™ if deployed and operated at intake #1. (BIO-2.)

- **Annual and Seasonal Flow Cap**

The Applicant shall implement an annual cap on flow of 139 [Applicant's initial proposal] billion gallons on the combined total of all units at the ESGS and shall also

cap the monthly flow volumes in February at 9.4 billion gallons, March 9.8 billion gallons and April at 10.0 billion gallons. The cap would be in addition to the daily limit in the NPDES permit for all units. If future NPDES permitting establishes that an annual flow cap is not necessary to avoid significant impacts, then the Applicant shall apply for and receive changes to this Condition of Certification that removes the annual flow cap requirement. If the NPDES permit for ESGS is changed to incorporate entrainment control technology that confirms less than significant impacts, then the Applicant shall apply for and receive changes to this Condition of Certification that removes the annual flow cap. **(BIO-3.)**

We will address the Energy Commission's handling of the Applicant's proposed conditions and the need for a 316(b) study later in this section, following underlying CEQA considerations.

The Determining an Appropriate Environmental Baseline

CEQA is clear that ~~it seeks to review~~ agencies must analyze the direct and indirect *physical changes* that the project may cause to the existing environmental setting. (CEQA Guidelines §§ 15358 & 15382.)

CEQA Guidelines section 15125, discussing the “Environmental Setting” content of an EIR, provides in part,

(a) An EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published, or if no notice of preparation is published, at the time environmental analysis is commenced, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant. (Emphasis added.)

Staff contends that the project setting is “set” established at the time of the filing of the Application for Certification (CEQA Guideline §15125). ~~On that basis,~~ The AFC was filed in December 2000, so Staff calculated the existing baseline for as the five years from 1996 through 2000, which averaged 126.78 billion gallons per year. ~~The AFC was filed in December 2000.~~ (Staff Written Direct Testimony, p. 6)

In its proposed annual flow cap condition which ~~will~~ would apply to the *entire* ESGS complex, the Applicant calculated the baseline for a five-year period from 1998 through 2002, almost 2 years into the AFC proceeding. Applicant's rationale is that 1998 through 2002 represents the period of its operation of the ESGS in the “deregulated” market as a merchant facility. Thus, any year that SCE operated the ESGS in a regulated setting is not included by the Applicant.

~~The Commission's determination of an appropriate CEQA baseline takes on an added significance in that, if the project proposes to operate within a flow cap at or below the baseline, the project necessarily will not cause physical changes to the environment. If the~~

~~project will not cause a physical change, then as a matter of law the project cannot cause a significant environmental impact.~~

The annual average flow using the Applicant's five-year period (1998 through 2002) ~~data~~ is 138.7 billion gallons per year. Applicant also testified that for 1998, 1999, and 2000, all years prior to the filing of the AFC, ~~this three-year the~~ annual average is 138.85 billion gallons, which is virtually the same as the five-year average which includes 2001 and 2002. (Applicant's Written Testimony, p. 16; 2/18 RT 82:1-16.)

~~The Staff's annual average flow using 1996 through 2000 data is 126.78 billion gallons per year.~~

~~Among the purposes of CEQA Guideline section 15125 is to assure that the Applicant cannot favorably alter the "existing" environmental setting by manipulating flow rates post-filing in order to reduce the apparent effects of the project.~~

~~The Commission has examined the underlying flow data to determine which set of data is both most reliable and reflective of the environmental setting.~~

~~Applicant's data in billions of gallons per year (Applicant's Written Testimony 1/22/03, Figure 2) are:~~

1998	1999	2000	2001	2002
117.48	148.55	150.53	137.95	139.03

~~As noted above, arguably, the Applicant's interests would be served by raising the CEQA baseline with higher annual flows in calculating the average flow so as to reduce the apparent effects of the project. Since 2001 and 2002, the years after the filing of the AFC, show lower flows than the two preceding years, the Commission finds that Applicant's data do not reveal manipulation which would render them unreliable or inappropriate.~~

~~Staff did not provide year-by-year flow data in its testimony. Consequently, the Committee calculated annual flows for 1996, and 1997 from Regional Water Board data otherwise provided to the record. (LARWQCB letters to David Abelson, 2/21/02 and 3/1/01). The flow data from 1996 and 1997, both years of SCE ownership, are:~~

1996	1997
99.2	129.5

~~The Applicant's data are more current, more and accurately reflect operation of the ESGS as a merchant facility, and appear un-manipulated and reliable. The Commission finds that an annual average of 138.7 billion gallons per year more accurately reflects the appropriate baseline for the "existing" environmental setting than the CEC staff suggested baseline. Had we been legally constrained to not use post-filing data, we would have relied upon the three-year average of 138.85 bgy since it is more reflective of the existing "merchant market" environment than including 1996 and 1997.~~

Since the baseline is normally determined by the environmental conditions as they exist at the time the environmental analysis commences, we have determined Staff's five-year annual average of 126.78 billion gallons per year to be the appropriate CEQA baseline. [CEQA Guidelines, section 15125(a)] This approach is consistent with baseline selection in other recent proceedings in which the Energy Commission has used a five-year average from "the-time-of-AFC-filing" baseline. (Morro Bay AFC; 00-AFC-12; Moss Landing AFC; 99-AFC-4) In addition, because the five-year average from 1996-2000 includes lower-than-normal operations by Southern California Edison, that baseline already has a built-in conservatism which favors environmental protection.

CEC Staff's "Zero" Baseline

Staff, while arguing that the baseline must be pre-AFC filing flows, also argued in the alternative that if a "baseline" can be changed post-filing, then this project's baseline has been changed to "zero" since the existing power plant's air quality Permit to Operate lapsed as of January 2003 and the power plant is not operating. Staff's "zero" baseline is 101.53 billion gallons per year, calculated by averaging the five year (1996-2000) flows for intake #2 (i.e., the other ESGS units) and zero as the current (2003 only) flow for intake #1.

In response, Applicant testified that it continues to operate the cooling water system at intake #1 at approximately 50 mgd, including the intake and outfall, so that it does not become fouled or clogged, as well as to maintain its NPDES permit. ~~Staff's cross-examination of the Applicant's witness shows that~~ There are, however, intermittent days when the cooling water system does not operate for maintenance or other reasons. (RT 2/19/03, 214:14-218:8.)

~~The Commission finds that the record supports that the existing cooling system is being operated at a minimal level under the existing permit to maintain it in a condition that could be operational for either the proposed project, if it is certified, or for the repowering of the existing units 1 & 2 if the Applicant so chooses, if the project is not certified (or is certified with infeasible conditions).~~

~~Moreover, had the CEC been able to maintain the nominal, statutory schedule, this proceeding would have concluded one year from filing, or December 2001, which was approximately two years prior to the lapsing of the air quality Permit to Operate. Much of that excess time was consumed by the Applicant's attempting to provide aquatic biology studies to satisfy the informational needs for which Staff claimed a new 316(b) study was required, ultimately to no avail.~~

~~Having recognized that the CEQA Guidelines intend that the baseline environmental setting is most reflective of the environment and not somehow manipulated, the Commission also notes that our Staff has largely controlled the proceeding schedule from December 2000 to November 2002 and so believes that resetting the baseline to "zero" due to these complicated, protracted proceedings would not serve the intent of CEQA nor be fair to this Applicant.~~

Since the Commission has chosen to use the five-year average as of the date of filing of the AFC for consistency with other proceedings and the language of the CEQA Guidelines, we

reject Staff's "zero" baseline since it applies data on intake #1 after the date of AFC filing. This conclusion is further supported by the finding that the existing cooling system is using approximately 50 mgd at intake #1, a finding that is also inconsistent with Staff's alternative baseline.

Annual Flow Cap Condition: Resulting Absence of Environmental Impacts

The Commission's determination of an appropriate CEQA baseline takes on an added significance in that, since the project proposes to operate within a flow cap at or below the baseline, the project necessarily will not cause physical changes to the environment. Since the project will not cause a physical change, then as a matter of law the project cannot cause a significant environmental impact.

The evidentiary record contains conflicting testimony as to whether the project would cause a significant environmental impact, mostly related to entrainment impacts. However, by adopting the Staff's initially proposed baseline of 126.78 billion gallons per year as a flow cap condition (BIO-3) limiting the operation of intake #1 and intake #2, we must conclude as a matter of law under CEQA that the project does not cause significant environmental impacts. Thus, we do not examine the evidentiary record to determine whether as a matter of fact there are significant environmental impacts if the project were operated above the 126.78 billion gallon per year baseline and the flow cap condition. We note, but do not rely upon for this finding of no significant impact, that the 126.78 billion gallon per year annual flow cap represents a 43 percent decrease from the current NPDES permit flow rates.

CEC Staff's Monthly "Seasonal" Baseline-Flow Caps

In response to the Applicant's proposed annual flow cap, the CEC Staff and the Intervenor argued that there was "seasonality" to the period of maximum entrainment impacts due to an abundance of fish larvae during their reproductive cycles and as a result, flow caps for each month should be required.

In response to such concerns, the Applicant also proposed as part of the flow cap a monthly flow restriction corresponding to the months of highest fish egg and larval concentrations in southern California (February 9.4 billion gallons; March 9.8 billion gallons; and April 10 billion gallons) to reduce entrainment impacts. (Mitchell, p. 16.) We adopt those monthly caps as a Condition of Certification (BIO-3) as well as the annual 126.78 gallon cap.

Staff testified that the ~~seasonal cap is substantively~~ Applicant's proposed monthly caps are insufficient to mitigate environmental impacts because, Staff asserted, there are at least two other peak fish egg and larval seasons and some species spawn year-round. Thus, to be completely effective, any seasonal cap must be monthly.

Staff also appears to extend its argument for need for monthly caps as mitigation to another option to "re-set" a post-filing baseline. Although CEC staff argued in the alternative for ~~its~~ a five-year annual average from 1996 through 2000 or a "zero" baseline due to the lapse of the Permit to Operate, Staff also seems to contend that a third potential baseline be "set" based

upon *monthly* average flows in order to preserve “existing” conditions, since any variation from historic monthly flows could cause impacts due to seasonal spawning. (Staff Brief p. 12.)

Staff’s testimony on the need for monthly caps was mixed. The initial testimony of Staff’s expert, in answer to a question of what type of seasonal cap, if any, would preserve existing conditions, was that there is no “compelling argument to have seasonal caps [since] fish larvae, in general, of various species are going to be vulnerable all year round...” (RT 2/18/03, 160:22-161:9)

~~Staff counsel immediately posed the same question again in slightly different form:~~

~~Q. Given that they’re vulnerable year round, would putting a cap on the[m] every month of the year that mimics existing conditions, in fact, make sure the circumstance didn’t get any worse? Every month?~~

~~A. So you’re asking the status-quo-ante question?~~

~~Q. Yeah.~~

~~A. No, I don’t believe so.~~

~~(RT 2/18/03, 161:10-18.)~~

~~For a third time, Staff counsel posed the same basic question and received the same answer from his own witness:~~

~~Q. So, what I am trying to say is this, if a cap were set at whatever the existing levels are every month of the year, every month not just the three months [proposed by Applicant], would that, in effect, maintain the existing conditions?~~

~~A. I don’t think so.~~

~~(RT 2/18/03, 162:3-8.)~~

~~Later, after the staff counsel and the Staff-sponsored expert witness had “chatted briefly” (RT 2/18/03, 178:20-179:2) to determine whether the prior questions might have been misunderstood, staff counsel posed the following:~~

~~Q. So the question ... I was asking was if instead of a three-month cap, a cap was imposed for each month of the year, January through December, at the existing baseline, whatever that might be, would that at least make sure that the condition wasn’t getting any worse?~~

~~A. Yes. And I did not understand it correctly when you first asked me that question. ... I would proposed to prevent increased adverse effects that you would have to impose a cap every month of the year. And each and every month, as per the recent statement.~~

~~I think the reason to do that — or the actual levels at which the cap would be would really depend on knowing at that site over a representative year what larvae might be available there. But, yes, I would say a monthly cap would be a much preferred window. (Emphasis added.)~~

Staff's testimony does not support establishing a new "baseline" by using monthly historic flow rates to define "existing" conditions. ~~The first three answers did not support using a monthly flow cap to preserve existing conditions. The fourth and final answer, Staff's testimony,~~ while supporting the concept of a monthly cap, made the level of the cap depend on knowing what larvae are available at the site over a representative year, not historic flow rates. Knowing the larvae present at the site is information derived from a 316(b) study leading to an NPDES permit, not the monthly flow rates reported by the Applicant to the LARWQCB.

~~The staff witness's initial answer seems to be the most correct, namely that there is too much variability in spawning peaks as well as different seasons when the same species spawn to have a monthly cap. Averaging, in particular annual averaging, inherently adjusts for this variability over multiple seasons.~~

The Energy Commission finds that there is too much variability in spawning peaks, as well as different seasons when the same species spawn, to allow creation of a reasonably accurate and useful set of monthly caps. Moreover, annual averaging inherently adjusts for this variability over multiple seasons.

Thus, for the purpose of establishing a CEQA "baseline," the Commission finds that the annual average, not a monthly average, taken over the five-year period from 1998–1996 through 2002 2000 best establishes the "existing" environment.

In its written comments on the Proposed Decision, the Coastal Commission staff asserts that a 316(b)-like study is needed in order to establish the appropriate CEQA baseline. However, the Energy Commission finds that our prior implementation of the CEQA Guidelines using a 5-year annual average cooling water flow rate is consistent with the objectives of the CEQA Guidelines, particularly since entrainment impacts (which are part of a 316(b) study) are proportional to flow rates.

CEQA Effect of Flow Cap Condition

~~Applicant proposes a condition that would reduce ocean water flows to the annual average withdrawn by Units 1 & 2 as well as Units 3 & 4 (i.e., both intakes), namely 138.7 126.78 billion gallons per year. Applicant testified that the annual cap will limit entrainment and impingement levels to pre-project levels and will insure that there are no increases in aquatic biology impacts caused by the project for purposes of compliance with CEQA, the Warren-Alquist Act, and the California Coastal Act. (Applicant's Written Testimony, p. 19.)~~

~~If annualized, the NPDES permit flow limits for all units are 220.8 billion gallons per year. Thus, the proposed cap represents a 37 52 percent decrease from permitted levels.~~

~~The Commission acknowledges that the Applicant's proposed flow cap condition is premised upon an "offset" concept. Any increase in flows from the new project (Intake #1) will be offset by the reduced flows for the older units 3 & 4 (Intake #2), all to the five-year annual average, 37 percent below the NPDES permit limit. CEC staff agrees with this "offset" approach since the two intakes are in such close proximity (400 feet). (Staff Testimony 1/22/03, p. 5.)~~

~~The Commission finds that the record persuasively establishes that the project, reconfigured by Applicant's proposed annual average flow cap, will not cause a change in the physical environment. Thus, as a matter of law, the project does not cause a significant environmental impact.~~

~~Also, the Commission must give appropriate recognition to the 2000 NPDES permit and the findings made by the Los Angeles Regional Quality Control Board. Finding No. 8 is pertinent:~~

~~Section 316(b) of the Federal Clean Water Act (Clean Water Act) requires that the location, design, construction, and capacity of cooling water intake structures reflect the best technology available for minimizing adverse environmental impacts. The U.S. Environmental Protection Agency (USEPA) is in the process of promulgating specific requirements for intake structures.~~

~~In accordance with Federal and State guidelines, SCE conducted a study (completed in 1982) that addressed the important ecological and engineering factors specified in Section 316(b) guidelines and provided sufficient evidence that no modification for the location, design, construction or capacity of the existing systems was required. The design, construction, and operation of the intake structure was then considered Best Available Technology Economically Achievable (BAT) as required by Section 316(b) of the Clean Water Act (CWA). (Emphasis added.)~~

~~Much of the Staff's expert testimony contested the validity and reliability of the proxy data used by the Regional Water Board in granting the 2000 NPDES permit renewal. In essence, this is a collateral attack on the permit decision of the Regional Water Board. Notwithstanding, the Staff experts testified that they "didn't say that there were project-specific significant impacts. What we say is that we don't know. What we're saying is that I believe that there's at least significant cumulative impacts by withdrawing **any** of these volumes of water from the Bay." (Emphasis added; RT 2/18/03, 249:8-13.)~~

~~The Commission rejects Staff's attempt, using the argument that **any** withdrawal of seawater is adverse, to find a significant cumulative impact by combining project impacts with existing stressors in Santa Monica Bay. These existing stressors are not separate, potential "projects" as required for a cumulative CEQA analysis. Instead, they are part of the existing environment. Staff has clearly failed to follow CEQA guidelines in this regard. [CEQA Guidelines §§ 15355, 15130(a)(1).]~~

~~In 2005, the Applicant will have to obtain a renewal of its NPDES permit in order to operate its project. The federal Environmental Protection Agency promulgated new draft rules affecting existing intakes in April 2002. The proposed new rules, pending adoption, state that any facility with more than 50 mgd intake (so the ESGS is included) has three options to demonstrate that it has the best available control technology for minimizing adverse environmental impacts:~~

- ~~The first option is to demonstrate compliance with performance standards by either reducing intake capacity to the equivalent of a closed-cycle, recirculating system or reducing impingement mortality by 80 to 95 percent and entrainment by 60 to 90 percent.~~
- ~~The second option is to demonstrate meeting performance standards by any combination of design changes, operational changes, or species/habitat restoration.~~
- ~~The third option is to demonstrate that the costs of meeting the performance criteria exceed a threshold or that costs would be much greater than the benefits derived from compliance.~~

~~CEC staff expert testified, “the bottom line is that the regulations will be significantly stiffened if any of the proposals go through as planned.” (RT 2/18/03, 174:1-3.)~~

~~The Commission is not ignoring Staff's testimony that current 316(b) studies, or an equivalent, at Diablo Canyon, San Onofre, Moss Landing and Morro Bay have found entrainment impacts not identified in previous on-site studies. (RT 2/18/03, 170:19-173:9.)~~

~~The Commission acknowledges that the Regional Board is the agency with the jurisdiction and the expertise to determine in a public process whether the cooling system intake and outfall will cause any environmental impacts and the applicable best available cooling system technology. The Commission is giving the appropriate deference to the regulatory process that led to the 2000 NPDES renewal, while at the same time conditioning this Decision, including the operation of the project, in a way that protects the environment and will contribute to the Regional Water Board's next review of this cooling system.~~

~~The Commission is reassured that the aquatic environment is being safeguarded by the Applicant's proposed annual flow cap to operate at 37 percent less flow than the currently “environmentally acceptable” NPDES permit limit. Staff testimony that “**any**” flow will cause a significant cumulative impact suggests a view, not supported by State policy (SWQCB 75-58), that use of ocean water be terminated because its impact will **always** be significant. So long as State and federal policy permit the use of ocean water, the Commission will not establish a contrary policy.~~

~~Moreover, the Commission believes that, by maintaining historic flow levels pending new NPDES review, the flow cap condition resolves near-term regulatory uncertainty created by the pendency of the new 316(b) regulations. Staff testimony that the new 316(b) regulations will “stiffen” regulatory requirements also encourages the Commission that future policy and regulation will further safeguard the aquatic environment of Santa Monica Bay to the extent feasible.~~

Seasonal Sub-Cap

~~The CEC staff and the Intervenor argued that there was “seasonality” to the period of maximum entrainment impacts due to an abundance of fish larvae during the reproductive cycle. CEC Staff testified that the Applicant's 3-month spring seasonal cap is substantively insufficient to mitigate environmental impacts because there are at least two other peak fish~~

~~egg and larval seasons and some species spawn year-round. Thus, any seasonal cap must be monthly.~~

~~Given the Commission's finding that under CEQA there is no change to the existing environment and thus no significant impact, "mitigation" in the CEQA sense is not legally necessary.~~

~~Since entrainment and impingement impacts are directly proportional to flows through the cooling system, there is a real benefit to the aquatic environment from both the Applicant's proposed annual average cap and the seasonal cap that addresses the peak spawning period. The Commission also has an interest in making sufficient electricity resources available for the health, safety and welfare of the people of the State of California.~~

~~Consequently, an overly restrictive monthly cap may curtail needed project operation. The meaning of an "average" in the annual average cap is that there will be days when flows are higher, but necessarily, therefore, there must be days that are lower. Plus, at all times, flows must be less than the NPDES permit limit, which the LARWQCB found to be "ecologically acceptable."~~

~~Considering all environmental and societal interests, the Commission believes that the flow cap condition below, enhanced by the seasonal sub-caps as proposed by the Applicant, protects and maintains the Santa Monica Bay environment.~~

CEC Staff's Wastewater Cooling Alternative

~~CEQA Guidelines provide that the lead agency analyze potentially feasible alternatives when the project causes significant environmental impacts. Energy Commission regulation (Appendix B (f)) provides that the AFC shall present, "[a] discussion of the range of reasonable alternatives...which...would avoid or substantially lessen any of the significant effects of the project..."~~

~~CEC staff, having determined in its own mind that there were significant aquatic biology impacts, examined a number of cooling alternatives, ultimately settling on the use of wastewater from the Los Angeles Hyperion Treatment Plant. Since the cooling water would come from the Hyperion Treatment Plant, rather than the ocean, all entrainment and impingement impacts would be eliminated. Other alternative cooling options were rejected for feasibility reasons. Dry cooling was eliminated due to site size constraints and noise and visual impacts. Wet/dry hybrid cooling with wastewater was eliminated due to the same constraints, plus visible plumes. Once through cooling with tertiary (drinking quality) treated wastewater was eliminated since Hyperion does not have a tertiary treatment facility and the cost of such a facility and its water would be excessive for this situation.~~

~~Specifically, Staff's alternative proposal is that ESGS use secondary treated wastewater from the City of Los Angeles Hyperion Treatment Plant, located on the coast approximated 1 mile north of the ESGS.~~

~~While the Staff's proposal is interesting and innovative, the Commission has found, as a matter of law, that the annual flow cap condition results in no physical change to the existing environment. Therefore, legally there is no significant environmental impact for which examination of an alternative is needed. Consequently, the Commission concludes, as a matter of law, that Staff's Hyperion wastewater cooling alternative is not needed under CEQA.~~

CEQA requires the lead agency, when assessing a project, to analyze potentially feasible alternatives that can reduce or avoid the project's significant adverse environmental impacts that may be caused by the project. Since the Staff believed that there were significant aquatic biology impacts, it examined a number of cooling alternatives and ultimately proposed, for the project's cooling water, the use of secondary-treated wastewater from the City of Los Angeles Hyperion Treatment Plant, which is located on the coast approximately one mile north of the ESGS. Using Hyperion water rather than water from the ocean would eliminate all impacts from the use of the proposed once-through cooling system.

Staff rejected other alternative cooling options because they were infeasible. Dry cooling and wet/dry cooling were eliminated because the site is not large enough for those technologies and because they would cause adverse noise and visual impacts. Once-through cooling with tertiary (drinking quality) treated wastewater was eliminated because Hyperion does not have a tertiary treatment facility and because the cost of such a facility and its water would be excessive. The Commission agrees with Staff and finds that these alternatives are infeasible.

However, the Energy Commission has found that the project's use of the existing cooling system, with the baseline flow cap described above, will result in no physical change to the existing environment. Therefore, the project will not cause a significant environmental impact, obviating the need for examination of an alternative system. Consequently, the Energy Commission will not analyze the Staff's proposed wastewater cooling alternative under CEQA. However, we will analyze that below when we discuss compliance with the California Coastal Act.

Compliance with LORS

The Federal Clean Water Act and the NPDES Permit

Section 316(b) of the Clean Water Act requires that the cooling water intake structures use the "best technology available" (BTA) to minimize environmental impacts. Section 316(b) is implemented in California through the issuance of NPDES permits by the state's regional water quality control boards. In order to operate the El Segundo project, the Applicant will have to obtain a renewal of the current NPDES permit, which expires in 2005.

In February 2004, the U.S. Environmental Protection Agency adopted new rules affecting existing intakes structures. The new rules state that any facility with more than 50 mgd intake has three options to demonstrate that it has the best available control technology for minimizing adverse environmental impacts:

- The first option is to demonstrate compliance with performance standards by either reducing intake capacity to the equivalent of a closed-cycle, recirculating system or reducing impingement mortality by 80 to 95 percent and entrainment by 60 to 90 percent [from unmitigated levels].
- The second option is to demonstrate meeting performance standards by any combination of design changes, operational changes, or species/habitat restoration.
- The third option is to demonstrate that the costs of meeting the performance criteria exceed a threshold or that costs would be much greater than the benefits derived from compliance. (40 CFR § 125.94 *et seq.*)

It appears that in order to meet the requirements of the new regulations, the Applicant will have to perform a 316(b) study of the existing environmental conditions as well as the effects of cooling system operation and potentially available technologies to reduce impacts. The Applicant will also have to implement design or operational changes, or provide mitigation in the form of species or habitat restoration in order to achieve the required reductions in mortality of aquatic species.¹

The Energy Commission proposes to move forward with an added Condition which will take its lead from the new 316(b) regulations to actually reduce entrainment impacts from this project. We believe that the “best professional judgment” in this matter should focus principally on the best technology available to reduce entrainment impacts, combined secondarily with any operational measures also to reduce entrainment.

Thus, Condition of Certification **BIO-4** provides that prior to commencement of commercial operation, the project owner shall reduce entrainment² through the ESGS cooling water intake #1 by at least 60 percent as directed and required by the LARWQCB under section 316(b) of the federal Clean Water Act. Pursuant to the implementation of federal regulations enacted under section 316(b) of the Clean Water Act and at the direction of the LARWQCB, project owner shall conduct a study of the entrainment effects of intake #1. While recognizing the authority of the LARWQCB to determine the final 316(b) study design, the Commission directs the Applicant to consult with other agencies, including the California Coastal Commission, the National Marine Fisheries Service, and the California Department of Fish and Game, as well as the CPM in the development of the 316(b) study design.

Upon implementation of the requirements of **BIO-4**, the facility-wide 126.78 billion gallon annual flow cap required by Condition of Certification **BIO-3** will be superseded by any new NPDES permit requirements, including any flow cap required by the LARWQCB.

¹ We also note that California Water Code section 13142.5(b) states that for “new or expanded coastal powerplant[s]...the best available siting, design, technology, and mitigation measures feasible shall be used to minimize the intake and mortality of all forms of marine life,” while section 13142.5(d) states that for “new or expanded” coastal facilities that independent studies should be done prior to development to assess impacts. The parties did not address these Water Code provisions. Although likely not applicable since project water use is not *expanded*, the Conditions in this Decision would nonetheless comply with the Water Code sections, since Condition **BIO-4** requires a pre-operation study of marine resources and the best technology available for reduction of entrainment.

² Impingement is also to be reduced by at least 80 percent.

Conformity to the California Coastal Act

~~The ESGS is within the “coastal zone” and thus subject to the requirements of the California Coastal Act. Public Resources Code section 25523(b), listing the required contents of the CEC Decision, includes provisions to meet the Coastal Act as may be specified in a report from the California Coastal Commission, unless the CEC finds such provisions would result in greater impact on the environment or are infeasible.~~

~~There was considerable debate about the interpretation and implementation of provisions of the Warren-Alquist Act that require coordination with the Coastal Act. This section of the Decision discusses and then applies those provisions.~~

1. **Sections 25523(d)(1) and 25525: Compliance with the Coastal Act**

~~Section 25523(d)(1) requires the Energy Commission to find whether a proposed facility complies with all applicable laws including, when a facility is proposed in the coastal zone, compliance with the Coastal Act and with local coastal plans. If the Energy Commission finds noncompliance, then section 25525 requires the Energy Commission to “consult and meet with the [Coastal Commission] to attempt to correct or eliminate the noncompliance”. If, after that, the proposed facility still does not comply, the Energy Commission may certify the facility only if it determines that the proposed facility “is required for public convenience and necessity and that there are not more prudent and feasible means of achieving such public convenience and necessity.”~~

~~Those determinations are solely within the province of the Energy Commission. The Energy Commission gives great weight to the assessment of the Coastal Commission on the compliance of proposed facilities with the Coastal Act and with local coastal plans (just as the Energy Commission also gives great weight to the assessment of other agencies on the compliance of proposed facilities with the laws that they administer), but the Energy Commission is ultimately responsible for making the determinations, based on the evidence in its record.~~

2. **Section 25523(b): Provisions Specified by the Coastal Commission to Achieve the Objectives of the Coastal Act**

~~Section 25523(b) requires the Energy Commission to include in its AFC Decision “specific provisions to meet the objectives of [the Coastal Act] as may be specified in the report (“Coastal Report”) submitted by the California Coastal Commission pursuant to subdivision (d) of Section 30413 [of the Coastal Act], unless the [Energy] commission specifically finds that the adoption of the provisions specified in the report would result in greater adverse effect on the environment or that the provisions proposed in the report would not be feasible.”~~

~~Here, the Coastal Commission, pursuant to its own procedures and record, makes an initial determination: whether there should be “specific provisions to meet the objectives of [the Coastal Act].” If the Coastal Commission designates any “specific provisions,” then the Energy Commission must include those “specific provisions” in the certification decision, unless the Energy Commission finds, based on material in its record, that (1) the provisions~~

would be infeasible or (2) permitting the facility with the specific provisions would cause a greater environmental impact than would permitting the facility without the specific provisions.

This provision is, in a sense, internally illogical. Although section 25523 applies to decisions on AFCs, it refers to “the report submitted by the California Coastal Commission pursuant to subdivision (d) of Section 30413 [of the Coastal Act]”. According to section 30413(d), the Coastal Report is prepared only during proceedings on “notices of intention” (“NOI”), which are now usually inapplicable precursors to proceedings on applications for certification. Faced with this conundrum, the Energy Commission must interpret and apply the statutes in the way that applies the statutory language and best promotes the objectives both of the Coastal Act, the most important objective of which is to preserve coastal resources, and of the Warren-Alquist Act, of which a key objective is to give the Energy Commission the final say in licensing needed power facilities, except in very narrow, carefully-specified situations. As we will explain in more detail below, it would serve neither objective to say that the Coastal Commission’s recommended “provisions” are irrelevant in AFC proceedings, or that the Energy Commission must absolutely defer to the Coastal Commission’s recommendations in formulating an AFC decision.

Some of the parties in this proceeding, as well as the parties in the Morro Bay AFC proceeding (Docket No. 00-AFC-12) vigorously debated the proper application of Section 25523(b). On March 3, 2004, the Morro Bay Committee (comprised of the same Commissioners as the El Segundo Committee) conducted a hearing to discuss the proper application of the Coastal Report to the AFC.

In that hearing, the Applicant, Duke Energy, noted that section 25523(b) expressly refers to the Coastal Report as prepared under Public Resources Code section 30413(d), which by its own express terms applies only in an NOI proceeding:

Whenever the...Energy...Commission exercises its siting authority...with respect to any thermal power plant...within the coastal zone, the [Coastal] commission shall participate in those proceedings and shall receive from the...Energy...Commission any **notice of intention** to file an application for certification of a site and related facilities within the coastal zone. The [Coastal] commission shall analyze each **notice of intention** and shall, prior to completion of the preliminary report [now summary and hearing order] required by Section 25510, forward to the...Energy...Commission a written report on the suitability of the proposed site and related facilities specified in that **notice**. (Pub. Res. Code sec. 30413(d); *Emphasis added.*)

The attorney for the El Segundo applicant appeared at the Morro Bay hearing and supported Duke Energy’s position.

By contrast, the Staff, the Coastal Commission staff, and intervenors in both the Morro Bay and El Segundo proceedings argue that section 25523(b), which lists the required contents of an AFC decision, contains no exemption for projects not subject to NOI proceedings. They also argued that the Legislature could not have intended that the Coastal Commission have a

more prominent role in specifying mitigation in the NOI's site selection process than in the AFC's site specific permitting phase.

It may appear somewhat incongruous that the Legislature would have created a powerful role for the Coastal Commission in AFC proceedings for which there was an NOI, and a lesser role in AFC proceedings for which there was no NOI. However, that is what the Legislature has done in Section 25523(b), by requiring the Commission to include in an AFC decision "specific provisions to meet the objectives of [the Coastal Act] as may be specified in the report submitted by the California Coastal Commission pursuant to subdivision (d) of Section 30413," but that "report" is submitted only in NOI proceedings. Moreover, while section 30413(d) requires the Coastal Commission to submit the Coastal Report in NOI proceedings (and section 25523(b) requires the 30413(d) report's recommended "provisions" to be included in AFC decisions unless the Energy Commission makes specified findings), section 30413(e) merely allows the Coastal Commission to participate in "other proceedings...by the Energy Commission...pursuant to its powerplant siting authority..." – i.e., in AFC and Small Power Plant Exemption (SPPE) proceedings – and there is no corresponding reference in section 25523 to the Coastal Commission's AFC participation.)

We also recognize that section 25540.6(a), which establishes the NOI exemption that is applicable to both El Segundo and Morro Bay, states:

Notwithstanding any other provision of law, no notice of intention is required, and the commission shall issue its final decision on the application, as specified in Section 25523, within 12 months after the filing of the application [if one or more of several conditions are met..." (Emphasis added.)

In other words, the language of section 25540.6 applies to more than the Energy Commission's portion of the Public Resources Code. "Notwithstanding any other provision of law" means unambiguously that if the NOI exemption of section 25540.6 applies, then any NOI-related provision of the Coastal Act is also not applicable to the stand-alone AFC. Since the stand-alone AFC was created for faster processing of less impactful projects and the NOI was retained for large projects such as nuclear or coal, the "[n]otwithstanding any other provision of law" language makes sense in how the Coastal Commission's report in the NOI is dropped for the stand-alone AFC.³ Since on its face section 30413(d) expressly relates only to the NOI, the Coastal Commission has no legal mandate to prepare such a Report, and the Report does not apply to a stand-alone AFC.

In sum, we conclude that the Coastal Commission is not mandated to submit a section 30413(d) Coastal Report in stand-alone AFC proceedings and that the Energy Commission is

³ When the Energy Commission was created in the mid-1970's, the regulatory scheme required a two-phase site and facilities certification process for every facility proposed. The initial phase – the Notice of Intention - required an applicant to propose multiple alternative sites which were then evaluated for their acceptability and relative merit. Under the statutory scheme, the second phase – the AFC – focuses on mitigation of site specific project effects. In order to be proposed in an AFC, any coastal site had to be selected as the preferred site in the NOI. In the years after the original NOI-AFC combination was established, the Legislature created a single phase AFC which did not require the extensive site selection process contained in the NOI.

not required to include in AFC decisions any “provisions” recommended in such a report if one is submitted.

However, as a matter of policy, we must recognize and give effect to California’s legislatively stated objectives of preserving and enhancing coastal resources and to the special role of the Coastal Commission. Therefore, we establish, pursuant to our responsibility to harmonize all the applicable statutory provisions, as a precedential decision under section 11425.60 of the Administrative Procedure Act, the following rules for this proceeding and for future AFC proceedings that involve a coastal site for which there is no NOI:

1. In its AFC proceeding, the Energy Commission will consider the factors listed in section 30413(d).

2. With regard to each factor, the Energy Commission will give substantial weight to the timely recommendations of the Coastal Commission following them unless the Energy Commission finds that they would be infeasible, or that they would cause a greater adverse effect on the environment (in comparison to certifying the proposed facility without the recommendations), or that, on the basis of clear and convincing evidence in the Energy Commission’s record, they would otherwise be inappropriate.

We believe this approach acknowledges and preserves the singular role of the Coastal Commission, while also following the statutory directive that the Energy Commission retains its discretion as the exclusive statewide power plant permitting authority under Public Resources Code section 25500.

On April 9, 2002, the Coastal Commission met in a public meeting and voted to adopt a report concerning the project in its original configuration, informing the CEC that,

- (1) the project will not conform to the Coastal Act policies in section 30230 requiring that marine resources be maintained, enhanced and, where feasible, restored;
- (2) the project will not conform to policies in section 30231 requiring that adverse entrainment effects be minimized; and
- (3) the Coastal Commission cannot identify specific mitigation to meet the Coastal Act policies until a 316(b)-like study is performed on the site.

After the Staff prepared its Hyperion Wastewater Cooling Alternative, the Coastal Commission met publicly on November 6, 2002, and adopted a report to the CEC that,

- (1) the Hyperion wastewater alternative appeared feasible and would conform to the policies of the Coastal Act, and
- (2) if the CEC does not require the wastewater alternative, a 316(b)-like study needs to be conducted in order to determine conformity to the Coastal Act.

As we discuss more fully below, we find that:

1. The project, as constructed and operated under all of the Conditions of this Decision, including the baseline flow cap restriction, the aquatic filter barrier feasibility study, the \$1 million payment to the Santa Monica Bay Restoration Commission, and the reduction of entrainment impacts by at least 60 percent following a 316(b) study will

- conform with Coastal Act policies requiring that entrainment effects be minimized and that marine resources be maintained, enhanced, and, where feasible, restored;
2. The inclusion in **BIO-4** of a requirement that the Applicant complete a study, under section 316(b) of the Clean Water Act, in conjunction with its application to the LARWQCB for a renewal of the ESGS NPDES permit constitutes our adoption in our Decision of the Coastal Commission's recommended provision of a 316(b)-like study; and
 3. The Hyperion wastewater cooling alternative is not feasible.

~~At the Prehearing Conference and subsequent Evidentiary Hearings (Feb. 2003), the Applicant proposed three conditions to address aquatic biology impacts.~~

Annual and Seasonal Flow Cap

~~As discussed above, the Applicant's annual flow cap proposal is has been revised by the Committee and accepted by the Applicant to reduce cooling water intake from all units at the ESGS by 37 percent below NPDES permit levels to the average of historic flows for 1998 1996 through 2002 2000. As an enhancement, the Applicant also proposes a three-month seasonal cap during February, March and April to reduce entrainment effects by reducing flows during the peak spawning season.~~

\$1 Million to Santa Monica Bay Restoration Commission

~~Second, the Applicant proposed an enhancement condition that it donates \$1 million to the Santa Monica Bay Restoration Commission to be used in its discretion toward "improving understanding of the biological dynamics of Santa Monica Bay and for purposes of improving the health of the Santa Monica Bay biological habitat."~~

Aquatic Filter Barrier Feasibility Study

~~Third, the Applicant proposed a condition that it conduct a study of the feasibility of constructing, deploying, and operating a Gunderboom Marine Life Exclusion System™ at intake #1 at ESGS. Gunderboom™ is the trade name for an aquatic filter barrier.~~

~~The CEC staff and the Coastal Commission staff had problems with each of these proposed conditions, and continue to maintain that the project does not conform to the Coastal Act. The Coastal Commission, itself, did not act to present a report in the brief period between the Applicant's finalization of its proposed conditions and the evidentiary hearings. However, Coastal Commission staff presented letters describing Coastal Commission staff's views of the proposed conditions.~~

~~The Energy Commission is required by law to address compliance with the Coastal Act and act in accordance with Public Resources Code section 25523(b). To do so, The Commission will discuss compliance of the project, configured with the Applicant's proposed conditions, with the Coastal Act provisions based upon the entirety of the record. Thereafter, the Commission will address the matter of the feasibility of the Staff's wastewater treatment alternative endorsed by the Coastal Commission report. And lastly, the Commission will address whether requiring the wastewater cooling alternative endorsed in the Coastal Commission reports will cause greater impact on the environment.~~

~~Conformity to Coastal Act Policies and Provisions~~

~~Land Use~~

~~The CEC staff testified as follows in its Land Use section of its Hyperion Wastewater Cooling Alternative,~~

~~The 33-acre ESGS property is within the designated Coastal Zone. The land use designation for the ESGS as shown in the City of El Segundo Local Coastal Program (LCP) is "Power Plant." The existing ESGS power plant facility was determined to be consistent with the City LCP because it is a "coastal dependent use" [by using seawater for cooling].~~

~~The Coastal Commission concluded that the ESGS was a coastal dependent use consistent with the LCP and that the LCP was in conformance with the Coastal Commission's Regulations (Coastal Act, Chapter 6, Article 2) in order to certify the LCP in February 1982.~~

~~The California Coastal Act includes several provisions that relate to coastal dependent development and particularly to the location or expansion of power plants in the Coastal Zone. Coastal Act § 30260 encourages the expansion and reasonable long-term growth of coastal dependent industry at existing sites. (SA 4.2 App.A-25, 26.)~~

~~The ESGS is a coastal dependent use because it withdraws ocean water for once-through cooling. Certainly, since 1982 when the Coastal Commission approved the LCP, the withdrawal of ocean water was known to have entrainment, impingement and thermal impacts. The Regional Water Board made the assessment of those impacts under the federal Clean Water Act. Therefore, approval of the LCP as consistent with the Coastal Act must necessarily have included an expressed or implied determination that conformity to the Coastal Act acknowledges some marine impacts from once-through cooling.~~

~~In the end, the Energy Commission must find that the type of once-through cooling system that exists at the ESGS has conformed to the California Coastal Act since the LCP was approved in 1982. Absent some change to the physical structure of the cooling system or material change in its operation, which is not proposed and has not changed for the last 40 years, the existing ESGS cooling system continues in conformity with the Coastal Act.~~

~~Water & Marine Resources~~

~~The City of El Segundo's Local Coastal Program (LCP) creation process resulted in the submittal of the first proposal in 1978. After review, the City of El Segundo determined that~~

~~the most appropriate mechanism to achieve the Coastal Act was an LCP consisting of two elements, namely, an Issue Identification and Coastal Zone Specific Plan.~~

~~In 1982, following public review and a re-draft by the City of El Segundo of its 1980 Local Coastal Program, the Coastal Commission adopted the El Segundo Local Coastal Program (LCP).~~

~~In addition to acknowledging the land use conformity of the ESGS, the approved El Segundo LCP and its supporting documentation also address water and marine resource issues. The El Segundo LCP Group Policy Analysis (section VI D) addresses Water and Marine Resources by identifying Public Resources Code section 30321 as the applicable coastal policy.~~

~~After identifying the requirement for NPDES permits for the Chevron and then SCE power plant, the LCP states,~~

~~Existing State and Federal regulations addressing Water and Marine Resources in El Segundo are adequate to meet the objectives and purposes of Chapter 3, Section 30321 of the Coastal Act. (p. 6).~~

~~In the same Policy Group Analysis, referring to Industrial and Energy Development (section VI N), the LCP identifies several applicable Coastal Act sections including Public Resources Code section 30260, cited by Energy Commission staff above, as encouraging the expansion and reasonable long-term growth of coastal dependent industry at existing sites.~~

~~The findings supporting the adopting of the LCP include the following language:~~

~~The following Coastal Act policy groups are not applicable or have been adequately addressed by other State or Federal laws as stated in the El Segundo Local Coastal Program submittal.
(d) Water and Marine Resources.~~

~~In the LCP Issue Identification (Part III), the Policy Group Evaluation for Water and Marine Resources (Part III B 4) addresses the Coastal Act policies of Public Resources Code sections 30320, 30231 and 30236.~~

~~The evaluation states:~~

~~Coastal Act policies that address water and marine resources require that particular attention be given to areas of special biological or economic significance. There are no such areas in the coastal zone in El Segundo.~~

~~Both facilities [SCE and Chevron] are subject to the requirements of the National Pollution Discharge Elimination System (N.P.D.E.S.) and, both facilities are required to comply with permits issued by the Regional Water Quality Board pursuant to N.P.D.E.S.~~

~~Discharges from both facilities appear to have only a marginal effect on the coastal water quality given the overall existing degraded nature of water quality in Santa Monica Bay.~~

~~During Applicant's cross-examination of Mr. Tom Luster of the Coastal Commission, the Applicant asked whether the LCP had been considered by the Coastal Commission in voting on the two reports concluding that the project did not comply with the California Coastal Act.~~

~~Mr. Luster responded,~~

~~The marine waters offshore of El Segundo are within the retained jurisdiction of the Coastal Commission. And so for marine biological impacts the [Coastal] Commission did not need to review conformity with the LCP. It just didn't apply in that situation....~~

~~If it did apply, the LCP mentions existing state and federal regulations. Those state and federal regulations include the California Coastal Act. And so the Coastal Commission's action in determining conformity with the Act, I assume, would be a part of the evaluation. (2/19 RT 153:1-13)~~

~~In its Reply Brief (p. 2), Energy Commission staff refers to Mr. Luster's testimony and argues "any marine resource determinations, if any, under the Local Coastal Plan [Program] (LCP) are either legally irrelevant and/or completely superseded by the determinations of the California Coastal Commission."~~

~~The Energy Commission acknowledges that the facts supporting the determinations made in the El Segundo LCP may have changed over the past 20 years. For example, our record demonstrates that areas of the coastal zone in El Segundo would today be considered to have special biological or economic significance.~~

~~But, as to the regulatory approach to marine resources, the plain language of the El Segundo LCP, as adopted by the Coastal Commission in 1982, appears to state that the federal NPDES permit process adequately addresses Coast Act policies related to protection of water and marine resources. In the past 20 years, the Coastal Commission has not rescinded or disavowed such a position in the LCP.~~

~~Without equivocation, the federal Clean Water Act controls the ESGS discharge into Santa Monica Bay and would preempt any other assertion of jurisdiction into that subject matter. The Coastal Commission's adoption of the El Segundo LCP appears to acknowledge this legal reality.~~

~~Yet, it is entirely proper for the Coastal Commission to seek through the policies of the Coastal Act to reduce the impacts to California coastal waters, so long as it does not usurp a prerogative of federal jurisdiction.~~

~~While the state of Santa Monica Bay may have changed in the years since the Coastal Commission adopted the LCP, the state of the hierarchical regulatory system of federal,~~

~~state, regional, and local jurisdictions has not changed materially in that time. In the end, the Energy Commission must harmonize the various applicable laws and policies and thus find, just as the Coastal Commission did in 1982, that reliance on the federal NPDES permit process as administered by the Los Angeles Regional Water Quality Control Board for a determination under section 316(b) continues to be in conformity to the Coastal Act and its policies.~~

Maintain, Enhance, and, Where Feasible, Restore

Public Resources Code section 30230 states:

Marine resources shall be *maintained, enhanced, and, where feasible, restored*. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

~~Specifically referring to entrainment impacts, Public Resources Code section 30231 states that biological productivity of marine waters:~~

~~“...shall be maintained and, **where feasible**, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment...” (*Emphasis added.*)~~

~~The Coastal Commission, itself, has not adopted a report that addresses the Applicant's proposed conditions, but the Coastal Commission's Executive Director presented two letters at the evidentiary hearings. The Executive Director's letter of February 10, 2003, most directly addresses the Applicant's proposed flow cap condition:~~

~~Since the Coastal Commission presented its latest findings and specific provisions (in November 2002), the applicant has proposed a significantly different measure related to the cooling system. The new proposal involves a cooling water “flow cap” meant to limit ongoing seawater use at the facility based upon past patterns of use. Although the Coastal Commission has not evaluated this new proposal, the proposal does not address the key concerns expressed by the Coastal Commission in its previous findings—that the proposed project would continue and extend entrainment impacts, and that the measures proposed to alleviate those impacts need to be based on current and relevant information. Because there is inadequate data about the existing effects of the cooling system on marine resources, proposed measures such as the “flow cap” that are based on these data would be arbitrary.~~

~~Discussion of the project's Coastal Act conformity needs to return to what the Energy Commission “knows” on the basis of the evidentiary record, developed by testimony and~~

~~sharpened by cross-examination. The Energy Commission knows that, under CEQA which applies to us and the Coastal Commission alike, the project does not cause a change in the environmental setting due to the flow cap, and thus as a matter of law, the project has no adverse environmental impacts. As such, the project does not require mitigation.~~

~~The Energy Commission also knows from the testimony of experts supporting and opposing the project that entrainment impacts are proportional to cooling water flows. Without this project and its flow cap condition, the existing units of the ESGS could operate (after the application of air pollution controls) at the NPDES permit level. Whereas, with the project and with the flow cap condition, the ESGS would be required to operate with flows reduced by 37 percent substantially, with entrainment impacts reduced in like proportion. Imposition of the flow cap, then, is not so much arbitrary, but is based upon good science and uncontroverted evidence that reduction of flows produces proportional reduction of entrainment impacts.~~

~~The Energy Commission also knows that the federal Clean Water Act 316(b) regulations will, absent some drastic retreat, stiffen the cooling water discharge requirements for existing facilities such as the ESGS. The 2005 NPDES renewal process will address two key questions: what are the cooling system's impacts and is the best available control technology being used. The Energy Commission does not presume to know, nor rely upon, the outcome of the stiffened cooling water discharge requirements. Rather, the Committee has evaluated the project on the basis of the existing law and the available evidentiary record.~~

~~So, as the Energy Commission looks at the objectives and policies of Coastal Act sections 30230 and 30231, in light of the Applicant's three offered conditions and the totality of our record, we believe that each of the three conditions produces conformity to those policies and objectives.~~

Maintain

~~First, the concept of "Maintaining" marine resources is synonymous with not causing a change to the physical environmental setting by any common sense application of the apparent meaning of words. The annual and monthly flow caps means that this project will maintain the marine environment status quo as it existed when the environmental review began.~~

The Coastal Commission had before it a project configuration that proposed to increase baseline cooling water flows up to the NPDES permit level. The Energy Commission need not reach the issue of whether an NPDES permit flow rate of 207 mgd is "maintaining" marine resources for that no longer is the project. The flow cap condition in this Decision will "maintain" the marine resources status quo related to this project so that the LARWQCB can conduct its Clean Water Act 316(b) review without this project's changing the environmental setting in an adverse way. For this reason, the Commission believes that flow cap condition should apply upon certification.

Enhance

~~Secondly, the demonstration of the aquatic filter barrier has the potential to dramatically "minimize entrainment impacts" and thus "enhance" marine resources. The condition requiring reduction of entrainment impacts by at least 60 percent will clearly enhance and will~~

help to restore marine resources. The aquatic filter barrier has the potential to enhance and restore marine resources. The CEC staff has concerns about biofouling problems with the barrier material and mooring stability problems due to ocean action in Santa Monica Bay. (Staff Direct Written Testimony, 1/22/03, p. 11) The Energy Commission previously reviewed the use of an aquatic filter barrier in the San Joaquin River setting in the Contra Costa Project (00-AFC-1). ~~The Commission is aware of other aquatic barrier applications in other states and is realistic about such~~ and understands that a demonstration in the open water of California's coast might not be successful. However, the fact that a filter barrier has not been previously demonstrated in such a setting does not mean that it should not be attempted.

Moreover, to enforce the entrainment minimization policy of the Coastal Act (§ 30231), the Energy Commission will modify the Applicant's proposed filter barrier condition to require that a feasibility study be completed in time to be considered by the LARWQCB in its 2005 NPDES renewal process. Moreover, if the LARWQCB determines that it is feasible to construct and operate the filter barrier to demonstrate its effectiveness, ~~and~~ that the El Segundo site is suitable for such a demonstration and orders construction of the filter barrier, this Decision requires the demonstration and incorporates it as part of the project. To meet the interests of the State of California as well as the particular provisions of the Coastal Act, the mere conduct of a feasibility study is not sufficient. If what constitutes "best control technology" available under 316(b) can be advanced by an aquatic filter barrier demonstration in this setting, this Commission assures that it shall be done. ~~Since Moreover,~~ in order to provide maximum technical and economic flexibility, the Energy Commission will not specify a particular vendor or its equipment; ~~this Condition is modified to and will~~ refer to an aquatic filter barrier, rather than the Gunderboom™ Marine Life Exclusionary System.

The Energy Commission also recognizes that the 3-month seasonal flow cap, which is not legally mitigation, will reduce entrainment impacts in the months of overall peak larval presence. The seasonal flow caps restrict monthly averages to approximately 55 percent of maximum permitted flows for each of the three months. (Applicant's Written Testimony, p. 18) Compared to the daily flow limits of the NPDES permit, the seasonal cap enhances marine resources by a material increment.

Restore

~~Third~~ The Applicant's payment of will pay \$1 million to the Santa Monica Bay Restoration Commission will also help to maintain and restore marine resources. The Staff contends that the \$1 million donation amount is too little when compared to mitigation costs in other approved or pending power plant licensing cases ~~at the CEC. Nor is there a before the~~ Energy Commission and that there is no scientific basis to set or limit the funding proposal to \$1 million. Staff, viewing the funding proposal as "mitigation," believes that a 316(b) study must be performed to determine the extent of impact and thus any dollar amount associated with such impacts. (Staff Direct Written Testimony, 1/22/03, p. 10.) But, as we have discussed above, mitigation is not required under CEQA and no particular amount of money, or result, is required to "maintain, enhance, or restore" marine resources.

~~Since this Decision finds that mitigation is not required under CEQA, Applicant's payment cannot be considered mitigation and does not need to be evaluated for its amount. Also,~~

~~since it is not mitigation, this Commission has no problem with having the Restoration Commission use its sole discretion in the expenditure of the funds for its programs and projects to further the restoration of Santa Monica Bay.~~

~~It seems self-evident that the programs of the "Restoration" Commission should "restore" the marine environment. Certainly, \$1 million won't restore the entire marine environment, but it should do something to restore part of it. Thus, the \$1 million restoration payment can be considered a project benefit.~~

~~Taken together, the flow cap, Restoration Commission donation, and aquatic filter barrier demonstration address each of the policy objectives of the applicable provisions of the Coastal Act. As a package, these conditions assure first that this project will cause no added impact to marine resources, then will contribute to an incremental improvement in those resources, and finally will commit to advancing best control technology for this project and potentially many others, including important ones in California.~~

Minimize Entrainment Impacts

Public Resources Code section 30231 states that biological productivity of marine waters:

"...shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment..."

The discussion above demonstrates that with the Conditions of Certification, the project minimizes entrainment impacts.

316(b) Study

The Coastal Commission specified in its Report that a 316(b) or 316(b)-like study be performed pre-certification in order to conform to section 30230 of the Coastal Act requiring that marine resources be maintained, enhanced, and where feasible restored, and section 30231 requiring minimization of entrainment impacts. In Condition **BIO-4**, we require the Applicant to perform a 316(b) study during the renewal proceedings on its NPDES permit. With the NPDES renewal required in 2005 and the anticipated project construction schedule perhaps completing in 2005, the Commission has also required that the requirements of **BIO-4** be met prior to commercial operation, which is post-certification. We believe that the timing of the requirements of **BIO-4** best assures that the 316(b) study is performed under the direction of the LARWQCB pursuant to applicable regulations. Since any other, pre-certification 316(b)-like study authorized or directed by another agency may not fulfill the requirements of the LARWQCB's "official" 316(b) study, we believe that the avoidance of duplicative studies and their impact upon marine biology and habitat is the better option. Thus, in our view, the 316(b) study provided in Condition **BIO-4** substantially fulfills the recommendation of the Coastal Commission. Moreover, the flow cap limitations of Condition **BIO-3** assure that the existing marine setting is maintained until the LARWQCB acts on the Applicant's NPDES renewal application.

The Energy Commission, while recognizing the authority of the LARWQCB to ultimately determine the “official” 316(b) study, seeks to promote the inclusion of other agencies, including the California Coastal Commission, the National Marine Fisheries Service, and the California Department of Fish and Game, in the development and review of the 316(b) study design.

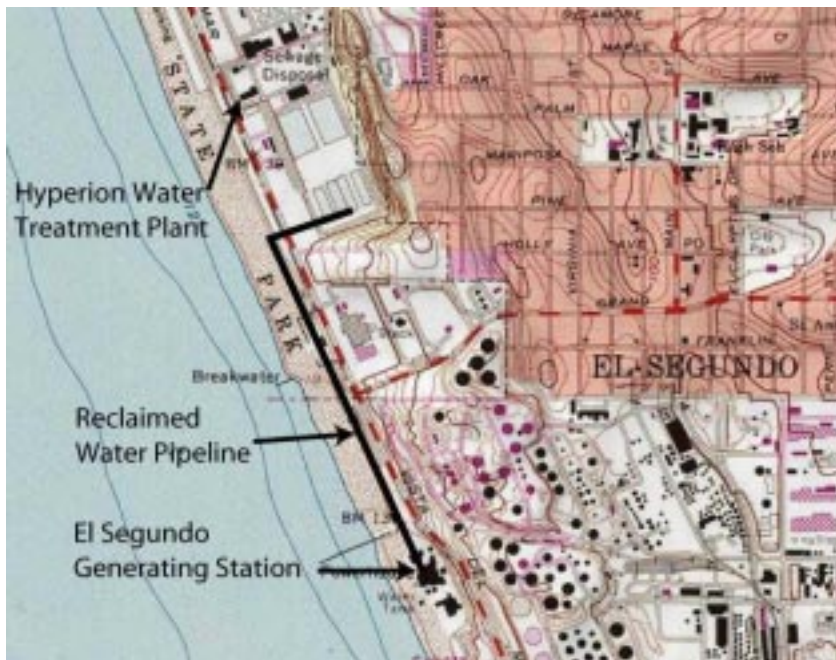
Feasibility of CEC Staff’s Hyperion Wastewater Cooling Alternative

As discussed previously, Staff analyzed the use of reclaimed water from the Los Angeles Hyperion Wastewater Treatment facility in order to eliminate impacts from the use of seawater for cooling.

After considering the Staff-prepared Hyperion Wastewater Cooling Alternative, the Coastal Commission met publicly on November 6, 2002, and adopted a report to the CEC that the Hyperion wastewater alternative appeared feasible and would conform to the policies of the Coastal Act. (RT 2/18/03,191:8-25.)

Based on evidence in the record, the Energy Commission finds that the Hyperion Wastewater Cooling alternative is not feasible and would result in greater impact to the environment. Public Resources Code section 25523(b) requires the Energy Commission’s Decision to incorporate provisions from the Coastal Commission report unless the CEC finds such provisions would result in greater impact on the environment or are infeasible.

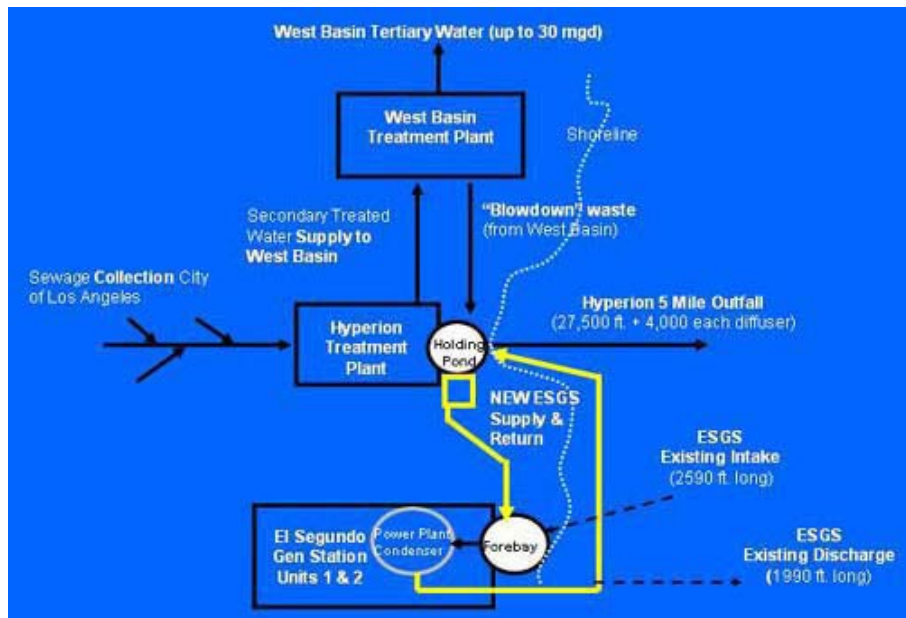
The Hyperion Treatment Plant treats sewage from the City of Los Angeles and discharges non-disinfected, secondary treated wastewater through an outfall approximately 5 miles offshore. The outfall is approximately 200 feet below the ocean surface.



The treatment capacity of Hyperion is 450 million gallons per day (mgd), and the current, average flow is about 360 mgd. However, actual flow varies throughout the day and night depending on sewage amounts. About 6 percent (28 mgd) of Hyperion’s secondary treated wastewater is delivered to its only customer, the West Basin Municipal Water District, which further treats that water and in turn sells tertiary (drinking quality) water to its customers.

Staff's proposed alternative would have ESGS taking delivery of between 50 to 150 mgd of secondary wastewater. This would be less flow than the existing NPDES permit level of 207 mgd because the wastewater would have a higher discharge temperature as it leaves the power plant. Essentially, acting as reciprocals, the lower the flow of cooling water, the higher the gain in discharge temperature of a given amount of water. (Thus higher water flows produce a lower gain in discharge temperatures for the same amount of water.)

Staff considered 5 connection alternatives and settled on the configuration above shown, which takes the treated wastewater from the "back-end" of Hyperion and returns the heated effluent to the outfall pipe.



Staff takes the position that either the Applicant must conduct the 316(b) study and mitigate the significant effects of the project or amend the AFC to substitute the Hyperion wastewater cooling alternative. Staff analyzed the alternative for all other possible environmental effects and testified that there are no adverse impacts to

this alternative.

However, Applicant testified that the Staff's wastewater cooling alternative was infeasible for permitting/contractual, engineering, and environmental reasons.

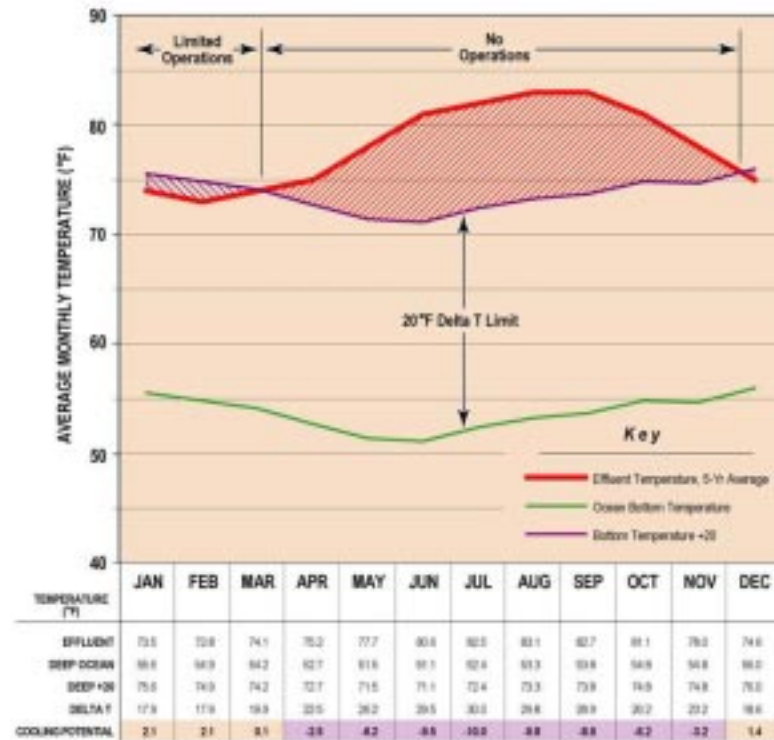
New NPDES Permit/California Thermal Plan

The Applicant contends the discharge of thermal wastes from the once-through cooling at the project back through Hyperion's five-mile outfall would require a separate NPDES permit and would be classified as a "new discharge" under the California Thermal Plan. ~~The~~ Thermal Plan section 3.B(3) establishes water quality objectives for "new discharges" to coastal waters and provides that the maximum temperature of the discharge not exceed the temperature of the receiving waters by more than 20 degrees F. (Applicant's Written Testimony, p. 39.)

Staff believes that, at worst, it is "not clear" that the Applicant would be required to obtain a new or separate NPDES permit. (Staff Rebuttal Testimony, p. 35)

Wastewater Alternative Exceeds Thermal Plan Requirements

The Applicant reviewed records of the temperature of the Hyperion wastewater and the temperatures of the receiving waters at the five-mile outfall. Since the bottom temperatures



of the receiving waters at the outfall range from 51 degrees F in June to 56 degrees F in December, the maximum discharge temperatures under the Thermal Plan would range from 71 degrees (51+20) to 76 degrees (56+20).

Yet, the average daily temperature of the current effluent that the power plant would receive from Hyperion is 72.8 degrees in February and 83 degrees in August. Consequently, the wastewater from Hyperion could not be heated by passing through the power plant and still comply with the Thermal Plan when discharged though the Hyperion five-mile outfall.

The Applicant believes that the LARWQCB strictly enforces compliance with thermal requirements and would not likely grant a variance from the Thermal Plan to the power plant. (Applicant's Written Testimony, pp. 40 & 41)

Staff testified that the Hyperion NPDES permit allows discharges up to 100 degrees F, so that discharges of project-heated effluent would be possible. However, Staff acknowledges that, when the effluent is at its maximum temperature before being heated by the power plant, the heated effluent could be as much as 105 degrees F. Staff suggests that the existing Hyperion NPDES permit be amended to allow the power plant's 105 degree F discharges. Staff believes that a 5-degree temperature rise would not cause any significant additional harm to the marine environment, so an amendment should be granted. Staff argues, alternatively, if no amendment is possible and the 100 degree F limit applies, the Applicant would switch back to its own existing seawater cooling system. (Staff Rebuttal Testimony, pp 35 & 36)

However, if the Applicant were required to obtain a new or separate NPDES permit, Staff believes either that the heated effluent discharge is not subject to the California Thermal Plan's 20-degree increase limit or that the Applicant could obtain a variance from the 20-degree limit. Staff reasons that since the five-mile outfall is two miles beyond the California

jurisdictional limit, the federal 316(a) requirements apply. Those federal performance requirements are that the discharge causes no appreciable harm or that the higher discharge temperature nevertheless assures protection and propagation of the marine community. (RT 2/18/03, 219:7-220:10)

Upon cross-examination, one of Staff's expert witnesses testified that the Thermal Plan, as part of the California Ocean Plan, "probably" applies to the heated wastewater discharges of the Staff's Hyperion Wastewater Cooling Alternative. (RT 2/19/03, 101:4-104:3; 104:25-105:2)

Staff's presumed worst case, with the power plant operating at full capacity, would discharge at 105 degrees F. (RT 2/19/03 105:13-106:11) Staff's expert testified that if wastewater flows were as low as 100 mgd, the project could not operate at full design capacity of 685 megawatts, because more megawatts produce more heat to transfer to the cooling water. (RT 2/19/03 116-16-120:7)

Under cross-examination, ~~the~~ Staff's expert witness also testified that with summertime conditions when the inlet temperature of the wastewater to the power plant is 85 degrees F, plus the project was operating at full design capacity, and 100 mgd was the available flow, the true worst-case discharge temperature is actually 123 degrees F, not 105 degrees. (RT 2/19/03 122:8-123:22)

A representative of the Los Angeles City Board of Sanitation, operator of Hyperion, offered comments consistent with the Applicant's view that a variance from the Thermal Plan may be subject to the anti-back-sliding provisions of the Porter-Cologne Act and the Clean Water Act. Typically, once a limit is imposed, such as Hyperion's 100-degree F limit, it cannot be relaxed. (RT 2/19/03 251 14-24)

Wastewater Flow Requirements

As discussed briefly above, the lower the flow of cooling water, the higher the gain in discharge temperature of a given amount of water. Consequently, by using higher water flows, there will be a lower gain in discharge temperature.

The Applicant used a thermodynamic model to determine what volume of flows would be necessary to prevent a violation of the Thermal Plan's 20-degree limit while using the Hyperion effluent. Applicant calculated that only a 2-degree increase in temperature was allowed in the winter. Thus, to meet the cooling requirements of the power plant running at full load, cooling water flows would have to be dramatically increased from Staff's range of 50 to 150 mgd up to 2,000 mgd. According to the Applicant, no amount of flow would comply with the Thermal Plan in the spring, summer, and fall. (Applicant's Written Testimony, p. 42, Table 1)

Hyperion, with a current maximum treatment capacity of 450 mgd, does not have the capacity to provide 2,000 mgd to the power plant. Moreover, during early morning periods of minimal flow, as little as 90 – 100 mgd would be available to the power plant. This constraint could be handled ~~either~~ partially by curtailing wastewater delivery to West Basin for tertiary treatment

~~and then to its customers~~ or by resumption of seawater cooling. (Applicant's Written Testimony, p. 39)

Supply and Return Pipelines for 2,000 MGD

The Applicant estimated that to convey 2,000 mgd from Hyperion and back to the outfall for winter-only cooling would require between 5 to 6 10-foot diameter pipes for each direction. Applicant believes that there is no space for placement of 10 to 12 pipes in the Vista Del Mar Avenue corridor. Also, the existing outfall and diffuser are not adequate to handle this increased flow volume. Moreover, the costs and off-site impacts associated with these pipelines would be much greater than those identified in the Staff's FSA analysis. (Applicant's Written Testimony, p. 43.)

Chevron Infrastructure

The Applicant contacted the Chevron refinery, immediately north of the ESGS, with regard to its willingness to accommodate the pipelines necessary for the supply and return of the wastewater between Hyperion and the ESGS. Chevron has unequivocally declined to make available or modify its terminal facilities for such a purpose. (RT 2/18/03 46:11-15)

Effluent Transport

Applicant contends that there may be regulatory, environmental, public health, and political concerns. The concerns regard whether the potential added temperature of the wastewater discharge may facilitate transport of the Hyperion secondary effluent to the ocean surface due to upwelling or currents. Thus, the pathogens in the secondary effluent might reach the ocean surface or coastal beaches. (Applicant's Written Testimony, p. 43.)

Staff testified that the heated wastewater would not cause pathogens to reach the beaches. Based on thermal plume model results that Staff obtained on the ESGS outfall that is 2,000 feet offshore, Staff believes that the heated discharge from the Hyperion five-mile outfall would not reach shore. According to Staff, salinity has a greater effect on buoyancy than temperature. Since the heated wastewater does not change the salinity ratios of the Hyperion discharge, any temperature increase would have a small effect upon plume behavior. Lastly, Hyperion's public health-protective NPDES permit temperature limit is 100 degrees F. So, a five-degree F increase is not likely to cause adverse health effects. (Staff Rebuttal Testimony, p. 38.)

The expert witness for the environmental Intervenor testified that discharging heated power plant wastewater along with Hyperion's effluent discharge presents "something critical to look at as part of the feasibility study." Namely, there is a need to study the impact of heated wastewater on the transport of Hyperion's effluent plume. According to the Intervenor's expert, the plume would rise more rapidly and would change the existing characteristics of plume transport. (RT 2/28/03 326:19- 328:25.)

Biofouling and Chlorine Discharge

Through the operation of its own cogeneration power plant, Hyperion found that secondary effluent, which has not had any nutrient removal, can produce high levels of biofouling, if not controlled. The biofouling was controlled by shock chlorination.

The Applicant claims that there will be significant technical challenges considering the elevated temperature of the wastewater and the long pipe runs. Hyperion used “primary” (untreated) effluent to absorb excess chlorine wastes from the shock treatment. Since the Staff alternative has the returning, chlorinated wastewater going directly to the outfall pipe (back-end), there is no opportunity to interact with primary effluent, which is at the front-end of the Treatment Plant. Hyperion does not have the capacity to process the chlorinated wastewater. (Applicant’s Written Testimony, p. 44.)

Staff acknowledges the use of “shock chlorine” treatments to control biofouling and the need for “dechlorination” before discharging the resultant cooling waters. Hyperion does not chlorinate its discharge. Hyperion’s NPDES permit has maximum as well as weekly and monthly average chlorine limits. Staff suggests that the Applicant could use “bursts” of high chlorination and avoid the need for dechlorination. Alternatively, the Applicant could circulate seawater through the cooling system to kill any algae growth. Staff also believes that the excess chlorine in the returning effluent would react with the unchlorinated Hyperion effluent during the one-hour, five-mile transit period to the outfall. Effectively, any excess chlorine would be consumed by this process. (Staff Rebuttal Testimony, p. 39 & 40.)

Infeasibility

The Energy Commission finds that the problems identified by the Applicant render the Hyperion wastewater treatment alternative infeasible, as that term is applied by CEQA and the Coastal Act (CEQA Guidelines section 21061.1; Pub. Res. Code § 30108). These problems begin with the absence of a contract to provide the wastewater. By City Charter, the wastewater is the property of the City of Los Angeles and would be subject to curtailment or termination on 120 days notice. (RT 2/19/03 243:11-246:6) Likely, the project would require its own, new NPDES permit to discharge thermal waste through the Hyperion outfall.

There is a fundamental inadequacy of the wastewater supply, particularly wastewater that is at an inlet temperature that would allow the power plant to be operated normally and still comply with the temperature limits at the outfall. There are serious engineering and land use issues associated with the multiple large supply and return pipes between ESGS and Hyperion. The biofouling of the cooling system and the possible effects from chlorination appear more problematic, not less, given the experiences at Hyperion’s own smaller power plant. Individually, none of these are minor matters. And taken together, they demonstrate that cumulatively the Hyperion wastewater proposal is infeasible and environmentally inferior to the project with the required conditions set forth in this Decision.

Fundamentally, there is also a serious question of whether the Hyperion wastewater alternative meets the most basic CEQA “alternatives” requirement, namely the Applicant’s objective of controlling the operation of its facility in response to electricity demand. Based upon the constraints of the varying flows of available wastewater, plus the temperature of the

wastewater when available, and the limitations on the discharge temperature of wastewater from the outfall, the Energy Commission believes for the vast majority of time the project could not operate or would operate well below its design capacity. In other words, the Applicant would lose control of the operation of it project due to cooling water constraints. (Applicant's Written Testimony, p. 37.)

Staff has addressed most of the potential infeasibilities identified above by stating that any short-term problem with the use of wastewater could be solved by reverting to the use of seawater cooling through the existing system. However, the Energy Commission believes that the evidence shows that reverting to the existing seawater cooling would become the rule, rather than the occasional exception, thereby defeating the purpose of the suggested alternative.

Staff acted appropriately, in its independent review function and based upon its view of potential project impacts, to search for an alternative and began to evaluate the use of wastewater since it appeared possibly feasible at a conceptual level.

The determination of the feasibility of the Hyperion wastewater alternative in the Coastal Commission report relied upon the conceptual-level analysis in the ~~Energy Commission~~ Staff's FSA. The Energy Commission in adjudicating the issues regarding the Project's impact on marine biological resources conducted a thorough and rigorous quasi-judicial proceeding, receiving evidence from all parties in the case. Staff's FSA constituted an important part of the evidentiary record, but only a part. Substantial evidence was presented by the Applicant in the form of pre-filed testimony and the oral testimony of expert witnesses. In the end, the Energy Commission has found that many of the positions taken in the FSA are not supported by substantial persuasive evidence and, therefore, has not adopted findings consistent with ~~these FSA positions~~ the arguments presented by Staff.

After applying the same scrutiny to Staff's wastewater cooling alternative as is routinely applied to any Applicant's project, the Energy Commission finds that this alternative is not capable of being elevated to the level of actual licensing, as Staff wishes, as a substitute for the already-permitted cooling water system at the ESGS. Thus, notwithstanding that "mitigation" is not required under CEQA, the Energy Commission also finds that Hyperion wastewater cooling alternative is not feasible. ~~for purposes of Public Resources Code section 25523(b).~~

Environmental Effect of Requiring Wastewater Cooling Alternative

~~The Energy Commission next addresses whether requiring the Applicant to construct the Hyperion wastewater cooling alternative pursuant to the Coastal Commission report would "result in greater impact on the environment..."~~

As discussed previously, the Coastal Commission met publicly on November 6, 2002, and adopted a report to the Energy Commission that the Hyperion wastewater alternative appeared feasible and would conform to the policies of the Coastal Act.

The Applicant has made it clear that it considers the Hyperion wastewater cooling alternative to be infeasible, and testified that it was prohibitively expensive as well. The Energy Commission has concluded that the alternative is infeasible.

If the Applicant would not construct the project due to an infeasible wastewater cooling water condition, it could repower the existing Units 1 and 2 in a manner similar to the repowering of the similar Huntington Beach power plant that ~~this~~ the Energy Commission reviewed and certified (00-AFC-13). This would leave the old, less efficient boiler units in place and operating. (See FSA, Alternatives, p. 6-12) To meet air quality requirements, the Applicant must install selective catalytic reduction as was done at Huntington Beach.

This result would lead to greater impacts upon the environment. Beginning with the marine environment, the existing NPDES permit would apply at 207 mgd daily limit until changed by the LARWQCB, instead of the ~~139-mgd~~ 126.78 billion gallon per year flow cap condition of this Decision. There would be no \$1 million donation to the Santa Monica Bay Restoration Commission; and there would be no demonstration of the aquatic filter barrier at a California open-ocean site.

For beach users, the old structures would not be replaced by less visually dominant structures. A repowered boiler unit would use more gas per megawatt than a combined-cycle facility. The repowered units could not generate the same amount of electricity as the project, leaving it to some other facility to generate the lost increment.

Thus, ~~for purposes of Public Resources Code section 25523(b),~~ the Commission finds that Hyperion wastewater cooling alternative, if required as presented in the Coastal Commission report of November 6, 2002, would result in greater impact to the environment compared to the proposed project with the ~~Applicant's newly proposed~~ conditions which are incorporated in this Decision.

Cumulative Impacts

Cumulative impacts are those that result from the incremental impacts of an action added to other past, present, and reasonably foreseeable future action, regardless of who is responsible for such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Staff experts testified that they "didn't say that there were project-specific significant impacts. What we say is that we don't know. What we're saying is that - - I believe that there's at least significant cumulative impacts by withdrawing **any** of these volumes of water from the Bay." (Emphasis added; RT 2/18/03, 249:8-13.)

The Commission rejects Staff's attempt, using the argument that **any** withdrawal of seawater in such amounts is adverse, to find a significant cumulative impact by combining project impacts with existing stressors in Santa Monica Bay. These *existing* stressors are not separate, potential "projects" as required for a cumulative CEQA analysis. Instead, they are part of the existing environment. [CEQA Guidelines §§ 15355, 15130(a)(1).]

By requiring an annual flow cap of 126.78 billion gallons per year, the Commission has found for the reasons stated above that, as a matter of law, no direct or indirect significant impacts will result from the operation of the project cooling system. Additionally, when examining the project with an annual flow cap of 126.78 billion gallons per year, in conjunction with other projects in the region, the Commission finds that no cumulative significant impact will result from "other closely related past, present, and reasonably foreseeable future projects." (CEQA Guidelines section 15355(b))

The proposed project does not provide any incremental impacts to riparian habitat. For marine biology purposes, the project is not increasing the flows of the cooling systems currently at ESGS. For these reasons, the proposed project is not expected to cause adverse biological impacts, when considered in conjunction with other similar development projects in the region, and therefore should not have any cumulative biological resource impacts. (Applicant's Writ. Test. Exh. B.)

Conclusion

The CEC Energy Commission has determined that the annual flow cap means that the project, which uses the existing cooling system, will cause no physical change to the existing environmental setting. Thus, under CEQA, there is no environmental impact, let alone a significant environmental impact from the project. Consequently no mitigation is required since there is no potential for impact. Moreover, the seasonal cap provides a project enhancement that will restrict flows, and thereby entrainment, during the peak spawning season. The annual flow cap will assure that the project causes no environmental impact under CEQA pending the 2005 review of the NPDES permit under new and more rigorous federal EPA guidelines. In relation to the current NPDES permit limitations, the caps in the proposed condition materially benefit Santa Monica Bay.

In addition, the Energy Commission has added Condition **BIO-4** which requires that before the Applicant can begin commercial operation of the project it must reduce entrainment impacts by at least 60 percent from unmitigated levels. Even though such a requirement would otherwise be imposed by new federal 316(b) regulations, the inclusion of Condition **BIO-4** means that we have taken a concrete step to improve the Santa Monica Bay marine environment. Beyond merely calling for a 316(b) study from which Staff, Coastal Commission, other agencies and environmental intervenors seek to have the Energy Commission establish mitigation on top of an existing valid permit, we have maintained and coordinated the regulatory scheme which vests the LARWQCB with the authority to review and, if appropriate under federal EPA regulations, renew the NPDES permit for the project's cooling system.

CONDITIONS

- ☒ **\$1 Million to Santa Monica Bay Restoration Project:** Applicant ~~will~~ shall place \$1,000,000 in trust ~~to for the benefit of~~ the Santa Monica Bay Restoration Project to be used to improve understanding of the biological dynamics of the Bay and to improve the health of the Bay habitat. ~~This could include fish population studies, entrainment~~

~~studies, or other studies approved by the Santa Monica Bay Restoration Project that focus on the Santa Monica Bay habitat.~~ The Santa Monica Bay Restoration Project would administer the funds. Condition: **BIO-1**.

- ☑ **Aquatic Filter Barrier Feasibility Study:** In consultation with the Los Angeles Regional Water Quality Control Board, the project owner shall conduct a study to determine the feasibility benefits and impacts of constructing, deploying, and operating an aquatic filter barrier at intake #1 at ESGS. The feasibility study shall also determine expected benefits and potential impacts of the aquatic filter barrier if deployed and operated at intake #1. The feasibility study shall be submitted to the LARWQCB as part of the 2005 NPDES permit renewal process. If the LARWQCB finds that it is feasible to construct and operate an aquatic filter barrier and that the ESGS intake #1 site is suitable for a demonstration and orders the project owner to install an aquatic filter barrier on intake #1 in compliance with applicable 316(b) regulations., the project owner shall construct and operate the aquatic filter barrier as directed by the LARWQCB. Condition: **BIO-2**.

- ☑ **Annual and Seasonal Flow Cap:** The Applicant shall implement an annual cap on flow of ~~139~~ 126.78 billion gallons on the combined total of all units at the El Segundo Generating Station ~~and shall also cap the monthly flow volumes in February at 9.4 billion gallons, March 9.8 billion gallons and April at 10.0 billion gallons, as shown below. The flow cap would be in addition to the daily limit in the NPDES permit for all units, and monthly caps of 9.4 billion gallons (February), 9.8 billion gallons (March), and 10.0 billion gallons (April) for a combined usage of all cooling water systems of the El Segundo Generating Station. In addition, the Applicant shall comply with all flow caps, of whatever duration, required by the applicable NPDES permit.~~

Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
12.2	<u>9.4</u>	<u>9.8</u>	<u>10</u>	<u>12.2</u>	<u>12.2</u>	<u>12.2</u>	<u>12.2</u>	<u>12.2</u>	<u>12.2</u>	<u>12.2</u>	<u>12.2</u>	<u>139</u>

If future NPDES permitting establishes that an annual flow cap is not necessary to avoid significant impacts, then the Applicant ~~shall~~ may apply for and may receive changes to this Condition of Certification that removes the annual flow cap requirement. ~~If the NPDES permit for ESGS is changed to incorporate entrainment control technology that confirms less than significant impacts, then the Applicant shall apply for and receive changes to this condition of certification that removes the annual flow cap.~~ Condition: **BIO-3**.

- ☑ **316(b) Study & Entrainment and Impingement Reduction:** Prior to commencement of commercial operation, the project owner shall reduce entrainment through the ESGS cooling water intake #1 by at least 60 percent from unmitigated levels and impingement by at least 80 percent, both from unmitigated levels, as directed and required by the LARWQCB under section 316(b) of the federal Clean Water Act. Pursuant to the implementation of federal regulations enacted under section 316(b) of the Clean Water Act and at the direction of the LARWQCB, Applicant shall conduct a study of the entrainment effects of intake #1. While recognizing the authority of the

LARWQCB to determine the final 316(b) study design, the Commission directs the Applicant to consult with other agencies, including the California Coastal Commission, the National Marine Fisheries Service, and the California Department of Fish and Game, as well as the CPM in the development of the 316(b) study design.

Cumulative Impacts

~~Cumulative impacts are those that result from the incremental impacts of an action added to other past, present, and reasonably foreseeable future action, regardless of who is responsible for such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.~~

~~The proposed project does not provide any incremental impacts to riparian habitat. For marine biology purposes, the project is not increasing the flows of the cooling systems currently at ESGS. For these reasons, the proposed project is not expected to cause adverse biological impacts, when considered in conjunction with other similar development projects in the region, and therefore should not have any cumulative biological resource impacts. (Applicant's Writ. Test. Exh. B.)~~

Findings

With the below Conditions of Certification, the project conforms with applicable laws related to biological resources, and there are no potentially significant adverse impacts to biological resources.

CONDITIONS OF CERTIFICATION

BIO-1: Prior to commercial operation, project owner shall place \$1,000,000 in trust to the Santa Monica Bay Restoration Commission. Use of the funds in trust must be restricted to improving understanding of the biological dynamics of Santa Monica Bay and for purposes of improving the health of the Santa Monica Bay biological habitat. This could include fish population studies, entrainment studies, or other studies approved by the Santa Monica Bay Restoration Project that focus on the Santa Monica Bay habitat. The funds in trust shall be administered by the Santa Monica Bay Restoration Commission, whose authority in determining the use of the funds shall be absolute. The Santa Monica Bay Restoration Commission shall have the responsibility to publish the results of any study(ies) conducted, and to account for the disposition of the funds in trust in a timely and detailed manner.

Verification: The Project Owner shall submit to CPM a copy of the receipt transferring the stipulated amount to the Santa Monica Bay Restoration Commission. If the Santa Monica Bay Restoration Commission conducts and publishes study(ies), the project owner shall provide a copy of such study(ies) to the CPM.

BIO-2: In consultation with the Los Angeles Regional Water Quality Control Board, the project owner shall conduct a study to determine the feasibility of constructing, deploying, and operating an aquatic filter barrier at intake #1 at ESGS. The feasibility study shall also determine expected benefits and potential impacts of the aquatic filter barrier if deployed and operated at intake #1. The feasibility study shall be submitted to the Los Angeles Regional Water Quality Control Board as part of the 2005 NPDES permit renewal process for possible use in implementing regulations under 316(b) of the Clean Water Act. If the Los Angeles Regional Water Quality Control Board finds that it is feasible to construct and operate an aquatic filter barrier and that the ESGS intake #1 site is suitable for a demonstration and orders the project owner to install an aquatic filter barrier on intake #1 in compliance with applicable 316(b) regulations, the project owner shall construct and operate the aquatic filter barrier.

Verification: The project owner shall submit to CPM and the LARWQCB a complete analysis and all results of the feasibility study no later than 60 days prior to the submittal of the NPDES permit renewal application as part of the evaluation involved in implementing applicable 316(b) regulations.

BIO-3: The project owner shall implement an annual cap on flow on the combined total of Intake #1 and Intake #2 of ~~439~~ 126.78 billion gallons and shall also cap the monthly flow volumes in February at 9.4 billion gallons, March 9.8 billion gallons and April at 10.0 billion gallons. If future NPDES permitting establishes that an annual flow cap is not necessary to avoid significant impacts then the project owner shall apply for and receive changes to this Condition of Certification that removes the annual flow cap requirement. If the NPDES permit for ESGS is changed to incorporate entrainment control technology that confirms less than significant impacts then the project owner shall apply for and receive changes to this Condition of Certification that removes the annual flow cap. The project owner shall report any communication with the LARWQCB regarding renewal or modification of the NPDES permit for ESGS.

Verification: Project owner shall report to the CPM all communication efforts with the LARWQCB regarding entrainment and NPDES permit renewal or compliance. Project owner shall report, in its annual report, monthly flow volumes for both Intake #1 and Intake #2.

BIO-4: Prior to commencement of commercial operation, the project owner shall reduce entrainment through the ESGS cooling water intake #1 by at least 60 percent and impingement by at least 80 percent, both from unmitigated levels, as directed and required by the LARWQCB under section 316(b) of the federal Clean Water Act. Pursuant to the implementation of federal regulations enacted under section 316(b) of the Clean Water Act and at the direction of the LARWQCB, project owner shall conduct a study of the entrainment effects of intake #1. While recognizing the authority of the LARWQCB to determine the final 316(b) study design, the Commission directs the Applicant to consult with other agencies, including the California Coastal Commission, the National Marine Fisheries Service, and the

California Department of Fish and Game, as well as the CPM in the development of the 316(b) study design.

The facility-wide flow cap required by Condition of Certification **BIO-3** shall expire upon completion of the requirements of this Condition, including any flow cap required by the LARWQCB.

Verification: Project owner shall submit proposed changes to this Condition, as required, to correspond with final regulations issued under section 316(b) of the federal Clean Water Act. Project owner shall submit to the CPM copies of all correspondence and submittals to the LARWQCB related to the implementation of section 316(b) regulations. Project owner shall inform the CPM of all 316(b)-related decisions by the LARWQCB and steps taken by the project owner pursuant to LARWQCB direction. Project owner shall report to the CPM when 316(b) regulations and corresponding entrainment or flow reductions or restoration measures have been implemented.

LAWS, ORDINANCES, REGULATIONS & STANDARDS BIOLOGY

APPLICABLE LAW	DESCRIPTION
FEDERAL	
Endangered Species Act of 1973 (16 USC, Section 1531 et seq.) and implementing regulations, (CFR, Section 17.1 et seq.)	Designates and provides for protection of threatened and endangered plants and animals and their critical habitat.
Clean Water Act, USC, Sections 316(a) and (b) and implementing regulations, (CFR, Section et seq.)	Requires scientific evaluation impingement and entrainment effects caused by intake structures (Section 316(b) and thermal effects caused by discharging heated waste Section 316(a). A National Pollutant Discharge Elimination System (NPDES) permit is required for facilities such as the proposed project.
National Environmental Policy Act (NEPA) of 1969 (42 USC 4341 et seq.) and implementing regulations (40 CFR Parts 1500-1508)	NEPA must be addressed if an Environmental Impact Statement (EIS) would be required for a Federal action/permit that would have a significant effect on the environment.
Section 404 of the Clean Water Act (33 USC Section 404 et seq.)	Prohibits the discharge of dredged or fill material into waters of the United States without a permit. A 404 Nationwide permit 12 is applicable for utility line placement near waters of the U.S. causing temporary discharge of material.
Executive Order 11990, Protection of Wetlands	Requires governmental agencies take action to minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out their responsibilities.
STATE	
California Endangered Species Act of 1984, (Fish and Game Code, Section 2050 et seq.)	Protect California's endangered and threatened species.
California Coastal Act, Sections 30230, 30231	Marine resources and their productivity and balance must be maintained, enhanced and restored.

CULTURAL RESOURCES – Summary of Findings and Conditions

	POWER PLANT SITE	CUMULATIVE IMPACTS	LORS COMPLIANCE
Cultural Resources <ul style="list-style-type: none"> ▪ Prehistoric ▪ Historic ▪ Ethnic Heritage 	MITIGATION	None	YES
	<p><u>Construction:</u> There are no known prehistoric resources, historic resources, or human remains at the highly disturbed power plant site in the existing El Segundo Generation Station. At most, there is a low potential for discovery of some unknown resource during construction excavation. Ground disturbance during demolition at the plant site may exceed previously disturbed ground and fill. There are four previously recorded sites within ¼ mile of the project, making it a potential location for encountering archeological material.</p> <p>MITIGATION:</p> <p>☑ The Project Owner will designate a cultural resource specialist who will monitor excavation and, in the event of an unanticipated discovery, provide for the handling and curation of any recovered cultural resources. Conditions: CULT-1 through CULT-8.</p> <p><i>References: AFC pp. 5.7-12-22; FSA Cultural Resources pp. 4.3-4-6.</i></p>		

CULTURAL RESOURCES- GENERAL

This analysis discusses cultural resources, which are defined as the structural and cultural evidence of the history of human development and life on earth. Cultural resources may be found on the ground surface or buried beneath the surface. Evidence of California's early occupation is becoming increasingly vulnerable due to the ongoing development and urbanization of the state. Potential cultural resources are identified through records searches and field surveys.

Since project development and construction usually entail surface and sub-surface disturbance of the ground, the proposed project has the potential to adversely affect both known and unknown cultural resources. Direct impacts are those which may result from the immediate disturbance of resources, whether from vegetation removal, vehicle travel over the surface, earth-moving activities, or excavation. Indirect impacts are those which may result from increased erosion due to site clearance and preparation, or from inadvertent damage or outright vandalism to exposed resource materials due to improved accessibility. Cumulative impacts to cultural resources may occur if increasing amounts of land are cleared and disturbed for the development of multiple projects in the same vicinity as the proposed project.

~~However, due to the prior disturbance at the existing power plant complex, the potential for undiscovered resources to be present at the power plant site appears to be very slight. There are four previously recorded sites within ¼ mile of the project. Since ground~~

disturbance during demolition at the plant site may be below previously disturbed ground and fill, there is a potential for encountering archeological material.

Prehistoric

Prehistoric archaeological resources are those resources relating to prehistoric human occupation and use of an area; these resources may include sites and deposits, structures, artifacts, rock art, trails, and/or any other traces of Native American human behavior. In California, the prehistoric period has been determined to pre-date 10,000 years before present (B.P.) and which extended well into the 18th century with the initiation of the Mission Period (ca. 1769) and the first Euro-American (Spanish) settlement of California.

The Los Angeles plain and fringing coastline has supported a continuous cultural occupation for at least the last 8,000 years. This particular area of Southern California is associated with the ancestors of the Gabrieleno/Tongva and Chumash. An archaic occupation has been identified in the archaeological record that reflects the early emergence of non-agricultural village-based groups in the Los Angeles Basin. Current archaeological evidence suggests that a relatively small population existed in the basin until approximately 2,000 years before present (B.P.). After that temporal marker, populations appear to have expanded considerably into resource-rich coastal and near-shore estuarine environments. Report from early European contacts to the area such as Juan Rodriguez Cabrillo and Sebastian Vizcaino indicated that some of the larger coastal villages had hundreds of occupants. These observations appear to be supported by the archaeological evidence, although by the late 18th Century, reports indicate that the Los Angeles City environs supported only a small but established hunter/gatherer culture. The coastal populations migrated away from the coast and back to the coast in response to environmental factors. Seasonal migrations of these various populations make delineation of their respective traditional territories difficult to define. The location of the project area, however, suggests a strong association with the Gabrielenos.

The earliest evidence of human occupation in the immediate area of the Del Rey bluffs comes from the Lambert study of 1983, where the southern fringes of the Ballona Lagoon and creek have been identified within a few miles of the current study area. On the Del Rey bluffs, the presence of desert culture-related artifacts and cremations, a noticeable lack of shell ornamentation, and the apparent lack of marine resources suggest a change in the population. This is generally attributed to the presence of Shoshone speakers from the Desert regions.

For approximately 500 years prior to Spanish contact, the western Los Angeles Basin was occupied during the Late Prehistoric by the "Canalino" culture known for their ability to exploit the ocean resources. The coastal site typically exhibited an abundance of shellfish and other marine resources. In the vicinity of the current project, CA-LAN-47, a Late Prehistoric Gabrielino village site, has yielded inhumations, stone bowl, projectile points, pestles, and scrapers all indicative of a Gabrielino presence. The site is described as a seasonal village for the procurement of resources along Ballona Lagoon.

However, the proposed power plant location yielded no physical evidence of prehistoric resources. (AFC p. 5.7-12-19; FSA Cultural Res., 4.3-5,6, 8.)

Historic

Historic archaeological resources are those materials usually associated with Euro-American exploration and settlement and the beginning of written historical records. Historic resources may also include archaeological deposits, sites, structures, traveled ways, artifacts, documents, and/or any other evidence of human activity. Prior to 1998, federal and state requirements identified historic resources as being greater than fifty years of age. Amendments to CEQA have removed the references to the fifty-year designation, while the federal regulations maintain the requirement.

The first recorded contact with Southern California Native Americans (including the Gabrielino) involved the Spanish exploration led by Juan Rodriquez Cabrillo in 1542. Many years later (1769), the Portola Expedition traversed present-day Los Angeles County and made direct contact with the Native population. Shortly thereafter, the Spanish Missionaries led by Father Junipero Serra began establishing Catholic missions throughout California. The references to the Gabrielino are directly related to the founding of the Mission San Gabriel in the San Gabriel Valley of Los Angeles County.

The City of Los Angeles was officially founded in 1786 and by 1800 there were as many as 30 small adobe structures in the area. The current project area (El Segundo) is well outside this early settlement. The City of El Segundo began as a “melon patch” and in 1911 was surveyed by representatives of the Standard Oil Company. The community was called “El Segundo” because it was the second Standard Oil Refinery location in Southern California. The City of El Segundo was incorporated in 1917 and developed into an industrial center when the farming activities gave way to commercial development, eventually including an airfield and other commercial ventures.

The arrival of the Standard Oil refinery in 1911 had a profound effect on the development of early El Segundo. The company almost immediately became the primary employer of the community, resulting in a reference to the “Standard Oil Payroll Town.” Residential housing was constructed shortly after the founding of the refinery and privately owned businesses were established throughout the area. Services were established along Richmond Street, El Segundo's first business district. At the time of incorporation, El Segundo had a population of 1,000.

The El Segundo Land and Improvement Company began surveying, grading, and development in 1911, installing curbs, sidewalks, and subdividing 1,470 acres. By 1912, many of the lots had sold, but only nine had been developed. The residential housing boom in El Segundo began with incorporation in 1917.

From the onset, the commercial enterprises of El Segundo concentrated on Richmond Street, rather than the adjacent Main Street. Numerous small, wood framed commercial buildings were on Richmond on two blocks between Ballona (later El Segundo Boulevard) and the

Pacific Electric tracks (Grand). Most of these structures were destroyed in a fire (ca. 1917), resulting in a redevelopment using bricks rather than wood. The 1930s brought the beginnings of the Los Angeles Airport (originally Mines Field) and the aerospace industry to El Segundo – including Douglas Aircraft (1928), Northrop (1932) and North American Aviation (1935). Hughes Aircraft arrived in the 1950s, supplementing the post-World War II military presence in the area.

There are no structures at the project site eligible for listing as historic resources. (AFC pp. 5.7-19-22; FSA Cultural Res., p. 4.3-7, 8.)

Ethnic Heritage

Ethnographic resources are those resources important to the heritage of a particular ethnic or cultural group, such as Native Americans, Hawaiian, Eskimo, African, European, or Asian immigrants. They may include traditional resource collecting areas, ceremonial sites, topographic features, cemeteries, shrines, or ethnic neighborhoods and structures. Ethnographic resources also include personal biographical data, interview data, and collections or oral histories relating the life ways of previous generations.

No Native American cultural resource sites have been identified by the Native American Heritage Commission or other Native American representatives. No human remains have been identified within the project area. However, should such resources be identified, the local Native American representatives must be contacted (following notification to the County Coroner) and all requirements of state and federal law, as appropriate. (AFC 5.7-22; FSA Cultural Res., 4.3-9, 10.)

MITIGATION:

- ☑ The Project Owner will designate a cultural resource specialist who will monitor excavation and, in the event of an unanticipated discovery, provide for the handling and curation of any recovered cultural resources. Conditions: **CULT-1** through **CULT-8**.

Cumulative Impacts

The potential for cumulative impacts may be associated with the degree of prehistoric and historic sensitivity. The project site is located in a general area where historic properties and archaeological sites have previously been identified. The area proposed for use has already been disturbed by development. Therefore, cumulative impacts are not an issue.

Proposed developments such as the ESPR power plant and its associated linear facilities in conjunction with other development projects would not alter the amount of land currently exposed to public access and/or the potential removal or damage to cultural resources. The combined effects of development may accelerate the potential for impacts to cultural resources, but not in this case. (FSA Cultural Res., p. 4.3-14.)

Finding

With the implementation of the Conditions of Certification, below, the project conforms to applicable laws related to cultural resources and all potential cultural resource impacts will be mitigated to insignificance.

CONDITIONS OF CERTIFICATION

DESIGNATED CULTURAL RESOURCES SPECIALIST

CUL-1 Prior to the start of ground disturbance, the project owner shall submit the resume of the proposed Cultural Resources Specialist (CRS), and one alternate CRS, if an alternate is proposed, to the CPM for review and approval. The CRS will be responsible for implementation of all cultural resources conditions of certification. and may obtain qualified cultural resource monitors (CRMs) to monitor as necessary on the project.

The resume for the CRS and alternate, shall include information that demonstrates that the minimum qualifications specified in the U.S. Secretary of Interior Guidelines, as published by the CFR 36, CFR Part 61 are met. In addition, the CRS shall have the following qualifications:

- a. The technical specialty of the CRS shall be appropriate to the needs of the project and shall include, a background in anthropology, archaeology, history, architectural history or a related field;
- b. At least three years of archaeological or historic, as appropriate, resource mitigation and field experience in California; and

The resume shall include the names and phone numbers of contacts familiar with the work of the CRS on referenced projects and demonstrate that the CRS has the appropriate education and experience to accomplish the cultural resource tasks that must be addressed during ground disturbance, grading, construction and operation. In lieu of the above requirements, the resume shall demonstrate to the satisfaction of the CPM, that the proposed CRS or alternate has the appropriate training and background to effectively implement the conditions of certification.

CRMs shall meet the following qualifications:

- a. A BS or BA degree in anthropology, archaeology, historic archaeology or a related field and one year experience monitoring in California; or
- b. An AS or AA in anthropology, archaeology, historic archaeology or a related field and four years experience monitoring in California; or
- c. Enrollment in upper division classes pursuing a degree in the fields of anthropology, archaeology, historic archaeology or a related field and two years of monitoring experience in California.

The project owner shall ensure that the CRS completes any monitoring, mitigation and curation activities necessary; fulfills all the requirements of these conditions of certification; ensures that the CRS obtains technical specialists, and CRMs, if needed; and that the CRS evaluates any cultural resources that are newly discovered or that may be affected in an unanticipated manner for eligibility to the California Register of Historic Resources (CRHR).

Verification: The project owner shall submit the resume for the CRS at least 45 days prior to the start of ground disturbance. At least 10 days prior to a termination or release of the CRS, the project owner shall submit the resume of the proposed replacement CRS. At least 20 days prior to ground disturbance, the CRS shall submit written notification identifying anticipated CRMs for the project stating they meet the minimum qualifications required by this condition. If additional CRMs are needed later, the CRS shall submit written notice one week prior to any new CRMs beginning work.

PROJECT MAPS SHOWING GROUND DISTURBANCE

CUL-2: Prior to the start of ground disturbance, the project owner shall provide the CRS and the CPM with maps and drawings showing the footprint of the power plant and all linear facilities. Maps will include the appropriate USGS quadrangles and a map at an appropriate scale (e.g., 1:2000 or 1" = 200') for plotting individual artifacts. If the CRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the CRS and CPM.

If the footprint of the power plant or linear facilities changes, the project owner shall provide maps and drawings reflecting these changes, to the CRS and the CPM for approval. Maps shall identify all areas of the project where ground disturbance is anticipated.

If construction of the project will proceed in phases, maps and drawings, not previously submitted, shall be submitted prior to the start of each phase. Written notification identifying the proposed schedule of each project phase shall be provided to the CRS and CPM.

At a minimum, the CRS shall consult weekly with the project construction manager to confirm area(s) to be worked during the next week, until ground disturbance is completed.

The project owner shall notify the CRS and CPM of any changes to the scheduling of the construction phases.

Verification: The project owner shall submit the subject maps and drawings at least 40 days prior to the start of ground disturbance.

If there are changes to any project related footprint, revised maps and drawings shall be provided at least 15 days prior to start of ground disturbance for those changes.

If project construction is phased, the project owner shall submit the subject maps and drawings 15 days prior to each phase.

A current schedule of anticipated project activity shall be provided to the CRS on a weekly basis during ground disturbance and also provided in each Monthly Compliance Report (MCR).

The project owner shall provide written notice of any changes to scheduling of construction phases within 5 days of identifying the changes. A copy of the current schedule of anticipated project activities shall be submitted in each MCR.

CULTURAL RESOURCES MONITORING AND MITIGATION PLAN

CUL- 3 Prior to the start of ground disturbance, the project owner shall submit the Cultural Resources Monitoring and Mitigation Plan (CRMMP), as prepared by the CRS, to the CPM for approval. The CRMMP shall identify general and specific measures to minimize potential impacts to sensitive cultural resources. Copies of the CRMMP shall reside with the CRS, alternate CRS, each monitor, and the project owner's on-site manager. No ground disturbance shall occur prior to CPM approval of the CRMMP, unless specifically approved by the CPM.

The CRMMP shall include, but not be limited to, the following elements and measures.

1. The following statement shall be added to the Introduction: Any discussion, summary, or paraphrasing of the conditions in this CRMMP is intended as general guidance and as an aid to the user in understanding the conditions and their implementation. If there appears to be a discrepancy between the conditions and the way in which they have been summarized described, or interpreted in the CRMMP, the conditions, as written in the Final Decision, supercede any interpretation of the Conditions in the CRMMP. The cultural resources conditions of certification are attached as an appendix to this CRMMP.
2. A proposed general research design that includes a discussion of research questions and testable hypotheses applicable to the project area. A refined research design will be prepared for any resource where data recovery is required.
3. Specification of the implementation sequence and the estimated time frames needed to accomplish all project-related tasks during ground disturbance, construction, and post-construction analysis phases of the project.
4. Identification of the person(s) expected to perform each of the tasks, their responsibilities; and the reporting relationships between project construction management and the mitigation and monitoring team.
5. A discussion of the inclusion of Native American observers or monitors, the procedures to be used to select them, and their role and responsibilities.
6. A discussion of all avoidance measures such as flagging or fencing, to prohibit or otherwise restrict access to sensitive resource areas that are to be avoided during construction and/or operation, and identification of areas where these measures are to be implemented. The discussion shall address how these

measures will be implemented prior to the start of construction and how long they will be needed to protect the resources from project-related effects.

7. A discussion of the requirement that all cultural resources encountered will be recorded on a DPR form 523 and mapped (may include photos). In addition, all archaeological materials collected as a result of the archaeological investigations (survey, testing, data recovery) shall be curated in accordance with The State Historical Resources Commission's "Guidelines for the Curation of Archaeological Collections," into a retrievable storage collection in a public repository or museum. The public repository or museum must meet the standards and requirements for the curation of cultural resources set forth at Title 36 of the Federal Code of Regulations, Part 79.
8. A discussion of any requirements, specifications, or funding needed for curation of the materials to be delivered for curation and how requirements, specifications and funding will be met. The name and phone number of the contact person at the institution. Include a statement in the discussion of requirements that the project owner will pay all curation fees and that any agreements concerning curation will be retained and available for audit for the life of the project.
9. A discussion of the availability and the designated specialist's access to equipment and supplies necessary for site mapping, photographing, and recovering any cultural resource materials encountered during construction.
10. A discussion of the proposed Cultural Resource Report (CRR) which shall be prepared according to Archaeological Resource Management Report (ARMR) Guidelines.

Verification: The project owner shall submit the subject CRMMP at least 30 days prior to the start of ground disturbance. Per ARMR Guidelines the author's name shall appear on the title page of the CRMMP. Ground disturbance activities may not commence until the CRMMP is approved. At least 30 days prior to ground disturbance, a letter shall be provided to the CPM indicating that the project owner will pay curation fees for any materials collected as a result of the archaeological investigations (survey, testing, data recovery).

CULTURAL RESOURCES REPORT

CUL-4 The project owner shall submit the Cultural Resources Report (CRR) to the CPM for approval. The CRR shall report on all field activities including dates, times and locations, findings, samplings and analysis. All survey reports, DPR 523 forms and additional research reports not previously submitted to the California Historic Resource Information System (CHRIS) shall be included as an appendix to the CRR.

Verification: The project owner shall submit the subject CRR within 90 days after completion of ground disturbance (including landscaping). Within 10 days after CPM approval, the project owner shall provide documentation to the CPM that copies of the CRR have been provided to the curating institution (if archaeological materials were collected), the State Historic Preservation Officer (SHPO) and the CHRIS.

WORKER ENVIRONMENTAL AWARENESS PROGRAM

CUL-5 Worker Environmental Awareness Program (WEAP) shall be provided, on a weekly basis, to all new employees starting prior to and for the duration of, ground disturbance. The training may be presented in the form of a video. The training shall include:

1. A discussion of applicable laws and penalties under the law;
2. Samples or visuals of artifacts that might be found in the project vicinity;
3. Information that the CRS, alternate CRS, and CRMs have the authority to halt construction to the degree necessary, as determined by the CRS, in the event of a discovery or unanticipated impact to a cultural resource;
4. Instruction that employees are to halt work on their own in the vicinity of a potential cultural resources find, and shall contact their supervisor and the CRS or CRM; redirection of work will be determined by the construction supervisor and the CRS;
5. An informational brochure that identifies reporting procedures in the event of a discovery;
6. An acknowledgement form signed by each worker indicating that they have received the training; and
7. A sticker that shall be placed on hard hats indicating that environmental training has been completed.

Verification: The project owner shall provide in the Monthly Compliance Report the WEAP Certification of Completion form of persons who have completed the training in the prior month and a running total of all persons who have completed training to date.

CULTURAL RESOURCES MONITORING

CUL-6: The CRS, alternate CRS, or monitors shall monitor ground disturbance full time in the vicinity of the project site, linear facilities and ground disturbance at laydown areas or other ancillary areas to ensure there are no impacts to undiscovered resources and to ensure that known resources are not impacted in an unanticipated manner. In the event that the CRS determines that full-time monitoring is not necessary in certain locations, a letter or e-mail providing a detailed justification for the decision to reduce the level of monitoring shall be provided to the CPM for review and approval prior to any reduction in monitoring.

CRMs shall keep a daily log of any monitoring or cultural resource activities and the CRS shall prepare a weekly summary report on the progress or status of cultural resources-related activities. The CRS may informally discuss cultural resource monitoring and mitigation activities with Energy Commission technical staff.

The CRS shall notify the project owner and the CPM, by telephone or e-mail, of any incidents of non-compliance with any cultural resources conditions of certification within 24 hours of becoming aware of the situation. The CRS shall also recommend corrective action to resolve the problem or achieve compliance with the conditions of certification.

Cultural resources monitoring activities are the responsibility of the CRS. Any interference with monitoring activities, removal of a monitor from duties assigned by the

CRS or direction to a monitor to relocate monitoring activities by anyone other than the CRS shall be considered non-compliance with these conditions of certification.

A Native American monitor shall be obtained to monitor ground disturbance in areas where Native American artifacts may be discovered. Informational lists of concerned Native Americans and Guidelines for monitoring shall be obtained from the Native American Heritage Commission. Preference in selecting a monitor shall be given to Native Americans with traditional ties to the area that will be monitored.

Verification:

1. During the ground disturbance phases of the project, if the CRS wishes to reduce the level of monitoring occurring at the project, a letter identifying the area(s) where the CRS recommends the reduction and justifying the reductions in monitoring shall be submitted to the CPM for review and approval.
2. During the ground disturbance phases of the project, the project owner shall include in the MCR to the CPM copies of the weekly summary reports prepared by the CRS regarding project-related cultural resources monitoring. Copies of daily logs shall be retained on-site and made available for audit by the CPM.
3. Within 24 hours of recognition of a non-compliance issue, the CRS shall notify the CPM by telephone of the problem and of steps being taken to resolve the problem. The telephone call shall be followed by an e-mail or fax detailing the non-compliance issue and the measures necessary to achieve resolution of the issue. Daily logs shall include forms detailing any instances of non-compliance with conditions of certification. In the event of a non-compliance issue, a report written no sooner than two weeks after resolution of the issue that describes the issue, resolution of the issue and the effectiveness or the resolution measures, shall be provided in the next MCR.
4. One week prior to ground disturbance in areas where there is a potential to discover Native American artifacts, the project owner shall send notification to the CPM identifying the person(s) retained to conduct Native American monitoring. If efforts to obtain the services of a qualified Native American monitor are unsuccessful, the project owner shall immediately inform the CPM who will initiate a resolution process.

DESIGNATED CULTURAL RESOURCE SPECIALIST AUTHORITY

CUL-7 The CRS, alternate CRS and the CRMs shall have the authority to halt construction if previously unknown cultural resource sites or materials are encountered, or if known resources may be impacted in a previously unanticipated manner. Redirection of ground disturbance shall be accomplished under the direction of the construction supervisor.

If such resources are found or impacts can be anticipated, the halting or redirection of construction shall remain in effect until all of the following have occurred:

1. the CRS has notified the project owner, and the CPM has been notified within 24 hours of the find description and the work stoppage.;

2. The CRS, the project owner, and the CPM have conferred and determined what, if any, data recovery or other mitigation is needed;
3. Any necessary data recovery and mitigation has been completed.

Verification: At least 30 days prior to the start of ground disturbance, the project owner shall provide the CPM with a letter confirming that the CRS, alternate CRS and CRMs have the authority to halt construction activities in the vicinity of a cultural resource find, and that the CRS or project owner will notify the CPM immediately (no later than the following morning of the incident or Monday morning in the case of a weekend) of any halt of construction activities, including the circumstance and proposed mitigation measures. The project owner shall provide the CRS with a copy of the letter granting the authority to halt.

WATER PIPELINE REALIGNMENT

CUL-8 The route for the water lines shall extend down Grand Avenue to Eucalyptus St. to El Segundo Blvd, which is within the water pipeline study area, bordered by El Segundo Blvd., Loma Vista St., Grand Ave. and Eucalyptus St. (Applicant has conducted a cultural resources assessment in the pipeline study area and within the area defined as the proposed project). If the water lines and associated pipelines are to be located anywhere but in an area originally defined as part of the proposed project, a cultural resource assessment shall be conducted prior to any ground disturbance. The cultural resource assessment shall consist of a records search and a pedestrian survey. This approach gives equal emphasis to prehistoric and historic resources and an evaluation of significance. A Native American monitor from a group with historic ties to the affected area shall be retained as part of the cultural resources team during any surveys or subsurface investigation.

Verification: Forty days prior to the start of any ground disturbance or project site preparation at the newly identified location of the waterlines and associated pipelines, the project owner shall submit the following for approval by the CPM: (1) the results of the records search and the results of the survey; (2) an evaluation, including site records, of all cultural resources within or adjacent to the project Area of Potential Effects; and (3) the information shall also include the name and tribal affiliation of the Native American monitor.

LAWS, ORDINANCES, REGULATIONS & STANDARDS CULTURAL RESOURCES

APPLICABLE LAW	DESCRIPTION
<i>FEDERAL</i>	
National Historic Preservation Act 916 USC 470, et seq.)	Applicable if federal permits are required, Federal funding provided, or lands owned by Federal government. Requires consultation with lead Federal agency, SHPO, & Advisory Council on Historic Preservation.
36 CFR 61	Professional qualification standards/procedures for state and local government historic preservation programs/cultural resources management.
<i>STATE</i>	
California Environmental Quality Act (CEQA) Guidelines (Sections 15064.5 & 15126.4)	Construction may encounter archaeological resources.
Health & Safety Code 7050.5	If potential Native American human remains are encountered, coroner notifies Native American Heritage Commissioner within 24 hours.
Public Resources Code Section 5097.9	If Native American human remains are encountered, the Native American Heritage Commissioner assigns Most Likely Descendent.

GEOLOGY – Summary of Findings and Conditions

Earthquake	MITIGATION	None	YES
	<p>The project is located in seismic zone 4 and is 2.1 miles from the Palos Verdes-Coronado Valley fault. The power plant will be designed and constructed to withstand strong earthquake shaking as specified in the 2001 California Building Code for seismic zone 4. See also FACILITY DESIGN.</p> <p>MITIGATION:</p> <p><input checked="" type="checkbox"/> The Project Owner shall prepare an Engineering Geology Report pursuant to the California Building Code to fully describe the geologic conditions of the power plant site. Condition: GEO-1.</p> <p><i>References: AFC p. 5.3-13; FSA Geology, etc., p. 5.2-3.</i></p>		
Instability	MITIGATION	None	YES
	<p>The shallow ground water and loose sands combined with peak horizontal ground acceleration from a design earthquake create moderate to high liquefaction potential which must be addressed in facility engineering. Clay-rich soils, which are expansive in the presence of water, are well below the water table, and thus unlikely to affect final foundation design. Previously existing cut slopes along the eastern boundary of the site do not show potential for landslide or subsidence. Shoreline erosion and deposition are ongoing natural processes. Los Angeles County is responsible for beach maintenance.</p> <p>MITIGATION:</p> <p><input checked="" type="checkbox"/> The project Owner shall perform a liquefaction analysis. Condition: GEO-2.</p> <p><input checked="" type="checkbox"/> The Project Owner shall verify the integrity of cut slopes. Condition: GEO-3.</p> <p><input checked="" type="checkbox"/> The Project Owner shall monitor for shoreline erosion. Condition: GEO-4.</p> <p><i>Reference: AFC p. 5.3-22-30; FSA Geology, etc., p. 5.2-3, 4.</i></p>		
Mineral Resources	None	None	YES
	<p>There are no known geologic resources at the power plant site.</p> <p><i>References: AFC 5.3-32; FSA Geology, etc., p. 5.2-5.</i></p>		
Fossils (Paleontology)	MITIGATION	None	YES
	<p>There are no known paleontological resources at the power plant site. Procedures need to be in place in the event of an unanticipated discovery of paleontological resources during site excavation.</p> <p>MITIGATION:</p> <p><input checked="" type="checkbox"/> Procedures for the recovery of unknown paleontological resources at the power plant site will prevent a significant impact to paleontological resources. Conditions: PAL-1 to PAL-7.</p> <p><i>References: AFC p. 5.8-2-18; FSA Geology, etc., p. 5.2-5.</i></p>		

Flood	MITIGATION	None	YES
	<p>An existing 10-foot high masonry seawall on the seaward side of the power plant complex has not been overtopped during the most significant recent storm (1988) and will be extended north and south to further protect the power plant. The top of existing and extended seawall will be 30 feet above mean sea level, and thus not subject to inundation from tsunami.</p> <p>MITIGATION:</p> <p><input checked="" type="checkbox"/> The Project Owner shall design the seawall addition in accordance with accepted design practices and the California Coastal Commission Procedural Memo #19. Condition: GEO-6</p> <p><i>Reference: AFC p. 5.3-28, 29; FSA Geology, etc., 5.2 p. 4.</i></p>		

GEOLOGY – GENERAL

The project is located on the Torrance Plain of the Peninsular Range and is flanked by a bike path along a beach, the Pacific Ocean to the west, and a dune sand cut slope to the east. The El Segundo oil field lies approximately one mile east of the project.

The project will involve the demolition of existing Units 1 and 2, and the removal of their foundations will result in an excavation approximately 10 feet below existing grade. Ten feet of engineered fill will then be placed in the excavation.

The project is not crossed by known active faults. The depth to ground water varies with the tide, but ground water may be encountered at ten feet below existing grade. Site near-surface geology consists of alluvium, possibly semi-consolidated dune sand, and artificial fill. The character of the possible fill is unknown. Borings from the early foundation reports for the project do not indicate the presence of fill. The alluvium is made up of Quaternary to Recent age sands, silts, clays, and gravel beneath existing fill. Underneath the alluvium are Tertiary age marine and continental units of sandstone, conglomerate, and clays.

A 1.75:1 (horizontal to vertical) cut slope makes up the eastern border of the site. This slope is heavily vegetated and is made up of semi-consolidated dune sand. The slope is approximately 70 feet high and is not terraced along most of its length. The toe of the slope is supported by an approximately 3-foot-high concrete retaining wall, which also bears a number of pipes associated with the facility. The southern end of the 1.75:1 slope includes two additional retaining walls, each about 5 feet high, stepped up the slope. These higher walls appear to terminate to the north just about at the southern end of Units 1 and 2. North of Units 1 and 2, the slope steepens to 1.5:1.

The project site lies at an elevation of approximately 19 to 20 feet above mean sea level. Existing grade at the power plant site is approximately 1 percent. The existing site drainage is sheet flow in nature into a retention basin to the south. (FSA Geology, etc., p. 5.2-2.)

Earthquake

The project is located within Seismic Zone 4 per the 2001 edition of the California Building Code. There is no observable surface faulting at the project site. No active faults are known to cross the power plant site. A number of active faults lie within a 25-mile radius of the site. The closest active faults to the project are the Palos Verdes-Coronado Fault (2.1 miles southwest) and the North Branch of the Newport-Inglewood Fault Zone (7.3 miles northeast). The North Branch of the Newport-Inglewood Fault Zone is a right lateral strike slip fault with a slip rate of approximately 1 mm/year. The Newport-Inglewood Fault Zone has the potential to generate a **moment** magnitude 6.9 **earthquake** or greater. The Palos Verdes-Coronado Fault is a northwest-trending, right-lateral strike-slip fault capable of generating a moment magnitude 7.1 earthquake and has an average slip rate of 3 millimeters per year. Other faults near the project site include the Santa Monica Fault and the Whittier segment of the Ellsinore Fault, which are capable of earthquakes with a magnitude similar in size to the Newport-Inglewood Fault Zone. The Santa Monica Fault trends northeast and lies approximately 12 miles north of the site. The Whittier segment of the Ellsinore Fault, which trends northwest, is located more than 23 miles east of the project. The Whittier segment of the Ellsinore Fault has shown right-lateral strike-slip displacement with an average slip rate of 2.5 mm per year. The Santa Monica Fault has a slip rate of 1 mm per year with left-lateral reverse-oblique movement.

The existing power plant was in operation during both the Sylmar **moment** magnitude 6.4 earthquake and Northridge **moment** magnitude 6.7 earthquake. Furthermore, the plant was not damaged in the Sylmar earthquake and only had minor damage to a wall adjacent to the bike path during the Northridge earthquake. The Applicant has estimated that the peak horizontal ground acceleration for the design earthquake (with a 10 percent probability in 50 years return interval) is 0.46g. A peak horizontal ground acceleration of this intensity could cause instability of the existing cut slope and liquefaction of project foundation soils, depending on the soil conditions actually present. The Applicant has proposed to replace structures designed under much older building codes with structures designed under current earthquake standards. (AFC p. 5.3-5-22; FSA Geology, etc., p. 5.2-3, 4.)

MITIGATION:

- ☒ The Project Owner shall prepare an Engineering Geology Report pursuant to the California Building Code to fully describe the geologic conditions of the power plant site. Condition: **GEO-1**.

Instability

Liquefaction is a nearly complete loss of soil shear strength that can occur during a seismic event. During the seismic event, cyclic shear stresses cause the development of excessive pore water pressure between the soil grains, effectively reducing the internal strength of the soil. This phenomenon is generally limited to unconsolidated, clean to silty sand (up to 35 percent non-plastic fines) and very soft silts lying below the ground water table. The higher the ground acceleration caused by a seismic event, the more likely liquefaction is to occur. Severe liquefaction can result in catastrophic settlements of overlying structural

improvements and lateral spreading of the liquefied layer when confined vertically but not horizontally. Soil borings contained in the AFC indicate ground water is present at depths as shallow as 10 feet below existing grade. The borings also indicate that locally loose sands underlie the site. As a result, the potential for liquefaction is moderate to high. The California ~~Division of Mines and Geology~~ Geological Survey has mapped the area as a liquefaction hazard zone.

Hydrocompaction is the process of the loss of soil volume upon the application of water. The fill at the site varies in consistency from loose to dense and is saturated below the water table. The potential for significant compaction due to hydrocompaction is considered remote since the ground water table at the site is shallow.

Subsidence of surface and near-surface soils may be induced at the site by either strong ground shaking due to a large nearby earthquake, by consolidation of loose or soft soils due to heavy loading of the soils by large structures, or by the extraction of fluids from the subsurface. Subsidence due to oil extraction is a regional problem that has been partially mitigated by the injection of water into the subsurface. The injection of water into the subsurface has also been regionally used to prevent the intrusion of seawater into local aquifers north of the project. Subsidence due to ground water withdrawal has not been a major problem in the area – partially because sea water often replaces the fresh water that is pumped from the aquifer. Both subsidence stabilization and the salt-water intrusion mitigation have been moderately successful. Water injection is not anticipated as part of the proposed project.

Soils that contain a high percentage of expansive clay minerals are prone to expansion if subjected to an increase in water content. Expansive soils are usually measured with an index test such as the expansive index potential. The Applicant has indicated in the AFC that the only suspected expansive clay soils lay well below the water table, making shrink-swell very unlikely. Prior to the final design of the foundation for the project, the Applicant will have a foundation investigation report conducted and reviewed by the CBO.

Landslides typically involve rotational slump failures within surface soils/colluviums and/or weakened bedrock that are usually implemented by an increase of the material's moisture content above a layer which exhibits a relatively low strength. Debris-flows are shallow landslides that travel down-slope very rapidly as muddy slurry. No landslides were observed on or adjacent to the proposed power plant site. A shallow, minor, slump was observed in the cut slope near the project administration building. The Applicant proposes to evaluate slope stability during conduct of engineering geological/geotechnical investigations.

Landward erosion is a constant force acting on any shoreline. Erosion and deposition at the shoreline are complex, dynamic processes involving a number of variables that may interact with each other in a chaotic manner. Beaches in this area are largely artificial, the result of a series of beach nourishment projects between 1938 and 1984. A groin was constructed by Chevron in the late 1980s to protect an oil pipeline.

In 1988, a "Great Storm" struck the California Coast, including the El Segundo Area. By coincidence, a shallow-water beach profiling survey had been completed around the Chevron

rock groin at project site the day before. A subsequent survey was performed 4 days after the peak storm waves and then periodically for about 9 months. North of the groin beach erosion ranged from 20 to 63 cubic yards per linear foot. South of the groin the erosion was much less at 4 to 10 cubic yards per linear foot; however, the beach eroded back to the bicycle path and the rock revetment. The revetment was damaged in numerous locations. Within 9 months, the beach north of the groin had recovered over 90 percent of the lost volume. South of the Chevron groin, beaches were artificially nourished right after the storm and were not monitored. Due to the presence of a significantly narrower beach south of the groin, the likelihood of wave run-up to the property may be considered moderate to high.

Maintenance of the beach and revetment is the responsibility of Los Angeles County. Limited historical data for coastal conditions along the El Segundo shoreline indicate that the project site may be subjected to extreme storm swell and sea conditions in conjunction with astronomical high tides. To address shoreline erosion concerns, the Applicant has proposed to design and conduct a shoreline monitoring program lasting a minimum of 10 years. (AFC p. 5.3-22-30; FSA Geology, etc., pp. 5.2-4, 5.)

MITIGATION:

- ☒ The project Owner shall perform a liquefaction analysis. Condition: **GEO-2.**
- ☒ The Project Owner shall verify the integrity of cut slopes. Condition: **GEO-3.**
- ☒ The Project Owner shall monitor for shoreline erosion. Condition: **GEO-4.**

Mineral Resources

The project is located approximately one mile west of the El Segundo Oil Field and one-half mile south of a single producing oil well owned by Occidental Petroleum. The project location is designated as Mineral Resources Zone-3, an area of undetermined mineral resources potential. No mineral resources have been identified at the present site, and there are no significant sand or gravel mines in the area. (AFC p. 5.3-32; FSA Geology, etc., p. 5.2-6.)

Fossils – Paleontology

Energy Commission staff has reviewed the Applicant's paleontological resources technical report. The project site is highly disturbed and partially covered by artificial fill. The Applicant's paleontologist reported no significant paleontological resources during the paleontological archive and literature reviews. The paleontologist did assign the power plant site a high sensitivity rating. The primary area of concern is the proposed 1.5:1 cut slope around the foundation zone of Units 1 and 2. Energy Commission staff observed no paleontological resources at the project site. (AFC p. 5.8-2-18; FSA Geology, etc., p. 5.2-7.)

MITIGATION:

- ☒ Procedures for the recovery of unknown paleontological resources at the power plant site will prevent a significant impact to paleontological resources. Conditions: **PAL-1** to **PAL-7.**

Floods

The existing power plant complex is afforded considerable protection from storm damage by the existing Chevron rock groin, an existing rock revetment, and an existing 10-foot-high masonry seawall, parallel to Units 3 and 4. The groin and revetments were built in 1983-1984 in response to severe storms during the previous winter, 1982-1983. There is no known documentation of any damage to the plant following that series of storms and prior to the construction of the shoreline protective structures. Conversations with on-site plant personnel have indicated that some wave run-up did enter the plant site through a chain link fence during the storm in mid-January 1988; however, overtopping of the seawall was not observed.

Damage was limited to deposition of water and sand in parking lot areas, south and possibly east of the generating equipment. A series of articles published in the journal *Shore and Beach* indicate that the storms of January 16-18, 1988 were an anomaly, which combined high tides and storm generated waves to a pre-existing, very high swell condition. The computed annual return period of the observed wave conditions for the 1988 storms was 400 to 500 years. In a memorandum dated July 29, 1992, the California Coastal Commission indicated that the design storm is the winter storm of 1982-1983, so that the "Great Storm" of 1988 must be considered an unusual event.

The Applicant is proposing no modifications to the existing rock revetment or rock groin. The existing masonry seawall, also known as the western perimeter wall, is proposed to be extended to the north and south, with the height of the new wall matching the existing at approximately 10 feet. The current top-of-wall elevation is approximately 30 feet above mean sea level, and about 10 feet above ground elevation. It is important that any modifications or additions to this wall be properly designed to withstand the adverse coastal conditions expected at this site.

A tsunami is a wave of water that may be generated by an earthquake or a large underwater landslide. The epicenter of the March 10, 1933 Long Beach earthquake was located in the Pacific Ocean, approximately 3.5 miles southwest of Newport Beach (39 miles southwest of the project site). No tsunami was observed after this earthquake (Wood 1933). Studies cited by the Applicant predict that tsunami upwelling would be between 5.5 and 9.4 feet, respectively, for the 100 and 500 year return periods. At high tide the tsunami run-up could be as high as +12 to +16 feet above MLLW. Since the site lies at approximately 19 feet above MLLW, and might be afforded some protection by the existing sea wall, no significant impacts from a tsunami are anticipated at project site. (AFC p. 5.3-28, 29; FSA Geology, etc., p. 5.2-5, 6.)

MITIGATION:

- ☒ The Project Owner shall design the seawall addition in accordance with accepted design practices and the California Coastal Commission Procedural Memo #19. Condition: **GEO-6.**

Cumulative Impacts

The potential for a significant adverse cumulative impact on paleontological resources, geological resources, or surface water hydrology is unlikely if the project is constructed according to the proposed conditions of certification. While the site is located near the El Segundo Oil Field; construction and operation of the project would not be expected to affect the oil field or vice versa. (FSA Geology, etc., p. 5.2-7.)

Findings

With the implementation of the Conditions of Certification, below, the project conforms to applicable laws related to geological and paleontological resources, all potential adverse impacts to geologic and paleontological resources will be mitigated to insignificance, and the public is not exposed to geological hazards.

CONDITIONS OF CERTIFICATION

GEO-1: Prior to the start of construction, the project owner shall assign to the project an engineering geologist(s) and a geotechnical engineer(s) certified by the State of California, to carry out the duties required by the 2001 edition of the California Building Code (CBC) Appendix Chapter 33, Section 3309.4. The certified engineering geologist(s) and geotechnical engineer(s) assigned must be approved by the CBO and submitted to the Compliance Project Manager (CPM) for concurrence.

Verification: At least 30 days (or a lesser number of days mutually agreed to by the project owner and the CPM) prior to the start of construction, the project owner shall submit to the CBO for approval the resume and license number(s) of the certified engineering geologist(s) and geotechnical engineer(s) assigned to the project. The submittal should include a statement that CPM concurrence is needed.

The CBO and CPM will approve or disapprove of the engineering geologist(s) and geotechnical engineer(s) and will notify the project owner of its findings within 15 days of receipt of the submittal. If the engineering geologist(s) and geotechnical engineer(s) are subsequently replaced, the project owner shall submit for approval the resume(s) and license number(s) of the newly assigned individual(s) to the CBO and CPM. The CBO and CPM will approve or disapprove of the engineering geologist(s) and geotechnical engineer(s) and will notify the project owner of the findings within 15 days of receipt of the notice of personnel change.

GEO-2: Prior to the initiation of ground disturbance, the owner shall have a liquefaction analysis conducted for the power plant site and adjacent existing cut slope to the east. The liquefaction analysis shall be implemented by following the recommended procedures contained in *Recommended Procedures for Implementation of California Division of Mines and Geology Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction Hazards in California* dated March 1999. (The document is

available through the Southern California Earthquake Center at the University of Southern California.)

Verification: The project owner shall include in the application for a grading permit (see Condition of Certification **GEO-5**) a report of the liquefaction analysis and a summary of how the results of this analysis were incorporated into the project foundation and grading plan design for the CBO's review and comment. A copy of the liquefaction analysis and summary of incorporated results shall be sent to the CPM prior to grading.

GEO-3: Prior to completion of the final design of the project, the owner shall have a slope stability analysis conducted for the existing cut slope east of Units 1 and 2. The analysis shall consider both static and earthquake conditions, as well as the effects of any liquefaction of the foundation soils. Since cohesionless soils may be present, the proposed 1.5:1 perimeter excavation should also be evaluated for stability, but only for static conditions.

Verification: The project owner shall include in the application for a grading permit (see Condition of Certification **GEO-5** below) a report of the slope stability analysis and a summary of how the results of this analysis were incorporated into the project foundation and grading plan for the CBO's review and comment. A copy of the CBO's comments shall be sent to the CPM prior to grading.

GEO-4: Applicant shall designate and use a Coastal or Geotechnical Engineer, or geologist familiar with geomorphology, to conduct a shoreline monitoring program and assess erosion on the beach area and at the foot of the revetment on an annual basis for at least ten years. Applicant shall report such results to the CPM and California Coastal Commission annually.

A detailed baseline survey is required, along with some historical research including air photos, a summary of past beach nourishment and shoreline damage. Sand sampling and testing shall be conducted. A series of onshore/offshore shore-normal transects every few hundred feet shall be conducted 4 times per year. Annually, photos from set positions can be taken (e.g. from the groin and from a high elevation in the plant). Shoreline response during and after a major storm will be documented.

After ten continuous years of monitoring, the owner shall prepare and submit a final report. The final report will serve as the annual report for year ten and will include a summary of findings over the 10-year period. Based on the ten-year summary report, the final report will include recommendations for either:

- continued monitoring on an annual basis in accordance with the established protocol if there is evidence of an adverse shoreline erosion condition;
- modifications to the monitoring program and continuation of the program, if modifications are warranted to increase, decrease, otherwise adjust the type and frequency of data collected; or,

- suspension of monitoring due to absence of an adverse shoreline erosion condition related to construction and operation of the ESPR.

Verification: At least thirty days prior to commencing construction, the Applicant shall designate the geologist and submit for approval the resumes of the engineer or geologist to the CBO and CPM. The engineer or geologist shall be experienced in shoreline monitoring, and understand coastal processes. Applicant shall submit as part of its annual compliance report the results of the assessment. Applicant shall also, at that time, forward the results to the California Coastal Commission and the City of El Segundo with a copy of the transmittal letter to the CPM. During the first 3 years following commencement of construction, the Applicant shall submit the above mentioned quarterly reports. The tenth annual report shall contain the final report.

GEO-5: The assigned engineering geologist(s) shall carry out the duties required by the 1998 CBC, Appendix Chapter 33, Section 3309.4 Engineered Grading Requirements, and Section 3318.1 – Final Reports. Those duties are:

- Prepare the Engineering Geology Report. This report shall accompany the Plans and Specifications when applying to the CBO for the grading permit.
- Monitor geologic conditions during construction.
- Prepare the Final Engineering Geology Report.

The Engineering Geology Report required by the 1998 CBC Appendix Chapter 33, Section 3309.3 Grading Designation, shall include an adequate description of the geology of the site, conclusions, and recommendations regarding the effect of geologic conditions on the proposed development, and an opinion on the adequacy of the site for the intended use as affected by geologic factors.

The Final Engineering Geology Report to be completed after completion of grading, as required by the 1998 CBC Appendix Chapter 33, Section 3318.1, shall contain the following: A final description of the geology of the site and any new information disclosed during grading; and the effect of same on recommendations incorporated in the approved grading plan. The engineering geologist shall submit a statement that, to the best of his or her knowledge, the work within their area of responsibility is in accordance with the approved Engineering Geology Report and applicable provisions of this chapter.

Verification:

- (1) Within 15 days after submittal of the application(s) for grading permit(s) to the CBO, the project owner shall submit a signed statement to the CPM stating that the Engineering Geology Report has been submitted to the CBO as a supplement to the plans and specifications and that the recommendations contained in the report are incorporated into the plans and specifications.

- (2) Within 90 days following completion of the final grading, the project owner shall submit copies of the Final Engineering Geology Report required by the 1998 CBC Appendix Chapter 33, Section 3318 Completion of Work, to the CBO and to the CPM.

GEO-6: The design for additional seawall or perimeter wall, including any necessary modifications to the existing seawall, shall be performed by a coastal engineer, geotechnical engineer, or engineering geologist, familiar with coastal processes and in accordance with the requirements of the California Coastal Commission Procedural Memo #19 (July 29, 1992).

If additional seawall is installed, performance of the seawall, with respect to shoreline erosion, will need to be addressed and verified in the shoreline monitoring program described under **GEO-4**. The wall should be textured and colored appropriately to minimize visual impacts.

Verification: Once a seawall design plan is available, the Applicant shall obtain approval of the design and construction methods from the CBO who will forward all approved plans and comments to the CPM. The CPM shall then forward this information to the Coastal Commission and the City of El Segundo.

PAL-1: The project owner shall provide the CPM with the resume and qualifications of its Paleontological Resource Specialist (PRS) and Paleontological Resource Monitors (PRMs) for review and approval. If the approved PRS or one of the PRMs is replaced prior to completion of project mitigation and report, the project owner shall obtain CPM approval of the replacement.

The resume shall include the names and phone numbers of contacts. The resume shall also demonstrate to the satisfaction of the CPM, the appropriate education and experience to accomplish the required paleontological resource tasks.

As determined by the CPM, the PRS shall meet the minimum qualifications for a vertebrate paleontologist as described in the Society of Vertebrate Paleontologists (SVP) guidelines of 1995. The experience of the PRS shall include the following:

1. institutional affiliations or appropriate credentials and college degree;
2. ability to recognize and recover fossils in the field;
3. local geological and biostratigraphic expertise;
4. proficiency in identifying vertebrate and invertebrate fossils;
5. publications in scientific journals; and
6. the PRS shall have at least three years of paleontological resource mitigation and field experience in California, and at least one year of experience leading paleontological resource mitigation and field activities.

The PRS shall obtain qualified paleontological resource monitors to monitor as necessary on the project. Paleontologic resource monitors (PRMs) shall have the equivalent of the following qualifications:

- 1) BS or BA degree in geology or paleontology and one year experience monitoring in California; or
- 2) AS or AA in geology, paleontology or biology and four years experience monitoring in California; or
- 3) Enrollment in upper division classes pursuing a degree in the fields of geology or paleontology and two years of monitoring experience in California.

Verification:

1. At least 60 days prior to the start of ground disturbance, the project owner shall submit a resume and statement of availability of its designated PRS for on-site work.
2. At least 20 days prior to ground disturbance, the PRS or project owner shall provide a letter with resumes naming anticipated monitors for the project and stating that the identified monitors meet the minimum qualifications for paleontological resource monitoring required by the condition. If additional monitors are obtained during the project, the PRS shall provide additional letters and resumes to the CPM for approval. The letter shall be provided to the CPM no later than one week prior to the monitor beginning on-site duties.
3. Prior to the termination or release of a PRS, the project owner shall submit the resume of the proposed new PRS to the CPM for review and approval.

PROJECT MAPS

PAL-2: The project owner shall provide to the PRS and the CPM, for approval, maps and drawings showing the footprint of the power plant and all linear facilities. Maps shall identify all areas of the project where ground disturbance is anticipated. If the PRS requests enlargements or strip maps for linear facility routes, the project owner shall provide copies to the PRS and CPM. The site grading plan and the plan and profile drawings for the utility lines would normally be acceptable for this purpose. The plan drawings should show the location, depth, and extent of all ground disturbances and can be 1 inch = 40 feet to 1 inch = 100 feet range. If the footprint of the power plant or linear facility changes, the project owner shall provide maps and drawings reflecting these changes to the PRS and CPM.

If construction of the project will proceed in phases, maps and drawings may be submitted prior to the start of each phase. A letter identifying the proposed schedule of each project phase shall be provided to the PRS and CPM. Prior to work commencing on affected phases, the project owner shall notify the PRS and CPM of any construction phase scheduling changes.

At a minimum, the PRS shall consult weekly with the project superintendent or construction field manager to confirm area(s) to be worked during the next week, until ground disturbance is completed.

Verification:

1. At least 30 days prior to the start of ground disturbance, the project owner shall provide the maps and drawings.

2. If there are changes to the footprint of the project, revised maps and drawings shall be provided at least 15 days prior to the start of ground disturbance.
3. If there are changes to the scheduling of the construction phases, the project owner shall submit a letter to the CPM within 5 days of identifying the changes.

PAL-3: The PRS shall prepare, and the project owner shall submit to the CPM for review and approval, a Paleontological Resources Monitoring and Mitigation Plan (PRMMP) to identify general and specific measures to minimize potential impacts to significant paleontological resources. Approval of the PRMMP by the CPM shall occur prior to any ground disturbance. The PRMMP shall function as the formal guide for monitoring, collecting and sampling activities and may be modified with CPM approval. This document shall be used as a basis for discussion in the event that on-site decisions or changes are proposed. Copies of the PRMMP shall reside with the PRS, each monitor, the project owner's on-site manager, and the CPM.

The PRMMP shall be developed in accordance with the guidelines of the Society of the Vertebrate Paleontologists (SVP, 1995) and shall include, but not be limited to, the following:

- 1) Assurance that the performance and sequence of project-related tasks, such as any literature searches, pre-construction surveys, worker environmental training, fieldwork, flagging or staking; construction monitoring; mapping and data recovery; fossil preparation and recovery; identification and inventory; preparation of final reports; and transmittal of materials for curation will be performed according to the PRMMP procedures;
- 2) Identification of the person(s) expected to assist with each of the tasks identified within the PRMMP and all conditions for certification;
- 3) A thorough discussion of the anticipated geologic units expected to be encountered, the location and depth of the units relative to the project when known, and the known sensitivity of those units based on the occurrence of fossils either in that unit or in correlative units;
- 4) An explanation of why, how, and how much sampling is expected to take place and in what units. Include descriptions of different sampling procedures that shall be used for fine-grained and coarse-grained beds;
- 5) A discussion of the locations of where the monitoring of project construction activities is deemed necessary, and a proposed schedule for the monitoring;
- 6) A discussion of the procedures to be followed in the event of a significant fossil discovery, including notifications;
- 7) A discussion of equipment and supplies necessary for recovery of fossil materials and any specialized equipment needed to prepare, remove, load, transport, and analyze large-sized fossils or extensive fossil deposits;

- 8) Procedures for inventory, preparation, and delivery for curation into a retrievable storage collection in a public repository or museum, which meets the Society of Vertebrate Paleontologists standards and requirements for the curation of paleontological resources; and
- 9) Identification of the institution that has agreed to receive any data and fossil materials recovered, requirements or specifications for materials delivered for curation and how they will be met, and the name and phone number of the contact person at the institution; and,
- 10) A copy of the paleontological conditions of certification.

Verification: At least thirty (30) days prior to ground disturbance, the project owner shall provide a copy of the PRMMP to the CPM. The PRMMP shall include an affidavit of authorship by the PRS, and acceptance of the project owner evidenced by a signature.

EMPLOYEE AWARENESS TRAINING PROGRAM

PAL-4: Prior to ground disturbance and for the duration of construction, the project owner and the PRS shall prepare and conduct weekly CPM-approved training for all project managers, construction supervisors and workers who operate ground disturbing equipment or tools. Workers to be involved in ground disturbing activities in sensitive units shall not operate equipment prior to receiving worker training. The training program may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or any other areas of interest or concern.

The Worker Environmental Awareness Program (WEAP) shall address the potential to encounter paleontological resources in the field, the sensitivity and importance of these resources, and the legal obligations to preserve and protect such resources. In-person training shall be provided for each new employee involved with ground disturbing activities, while these activities are occurring in highly sensitive geologic units, as detailed in the PRMMP. The in-person training shall occur within four days following a new hire for highly sensitive sites and as established by the PRMMP for sites of moderate, low, and zero sensitivity. Provisions will be made to provide the WEAP training to workers not fluent in English.

The training shall include:

1. A discussion of applicable laws and penalties under the law;
2. For training in locations of high sensitivity, the PRS shall provide good quality photographs or physical examples of vertebrate fossils that may be expected in the area;
3. Information that the PRS or PRM has the authority to halt or redirect construction in the event of a discovery or unanticipated impact to a paleontological resource;
4. Instruction that employees are to halt or redirect work in the vicinity of a find and to contact their supervisor and the PRS or PRM;
5. An informational brochure that identifies reporting procedures in the event of a discovery;

6. A Certification of Completion of WEAP form signed by each worker indicating that they have received the training; and
7. A sticker that shall be placed on hard hats indicating that environmental training has been completed.

Verification:

1. At least 30 days prior to ground disturbance, the project owner shall submit the proposed WEAP including the brochure with the set of reporting procedures the workers are to follow.
2. At least 30 days prior to ground disturbance, the project owner shall submit the script and final video to the CPM for approval if the project owner is planning on using a video for interim training.
3. If an alternate paleontological trainer is requested by the owner, the resume and qualifications of the trainer shall be submitted to the CPM for review and approval. Alternate trainers shall not conduct training prior to CPM authorization.
4. The project owner shall provide in the Monthly Compliance Report the WEAP copies of the Certification of Completion forms with the names of those trained and the trainer for each training offered that month. The Monthly Compliance Report shall also include a running total of all persons who have completed the training to date.

PAL-5: The PRS and PRM(s) shall monitor consistent with the PRMMP, all construction-related grading, excavation, trenching, and auguring in areas where potentially fossil-bearing materials have been identified. In the event that the PRS determines full time monitoring is not necessary in locations that were identified as potentially fossil-bearing in the PRMMP, the PRS shall notify and seek the concurrence of the CPM.

The PRS and PRM(s) shall have the authority to halt or redirect construction if paleontological resources are encountered. The project owner shall ensure that there is no interference with monitoring activities unless directed by the PRS. Monitoring activities shall be conducted as follows:

- 1) Any change of monitoring different from the accepted schedule presented in the PRMMP shall be proposed in a letter from the PRS and the project owner to the CPM prior to the change in monitoring. The letter shall include the justification for the change in monitoring and submitted to the CPM for review and approval.
- 2) PRM(s) shall keep a daily log of monitoring of paleontological resource activities. The PRS may informally discuss paleontological resource monitoring and mitigation activities with the CPM at any time.
- 3) The PRS shall immediately notify the project owner and the CPM of any incidents of non-compliance with any paleontological resources conditions of certification. The

PRS shall recommend corrective action to resolve the issues or achieve compliance with the conditions of certification.

- 4) For any significant paleontological resources encountered, either the project owner or the PRS shall notify the CPM immediately (no later than the following morning after the find, or Monday morning in the case of a weekend) of any halt of construction activities.

Verification: The PRS shall prepare a summary of the monitoring and other paleontological activities that will be placed in the Monthly Compliance Reports. The summary will include the name(s) of PRS or monitor(s) active during the month; general descriptions of training and construction activities and general locations of excavations, grading, etc. A section of the report will include the geologic units or subunits encountered; descriptions of sampling within each unit; and a list of fossils identified in the field. A final section of the report will address any issues or concerns about the project relating to paleontologic monitoring including any incidents of non-compliance and any changes to the monitoring plan that have been approved by the CPM. If no monitoring took place during the month, the project shall include a justification in summary as to why monitoring was not conducted.

The PRS shall submit the summary of monitoring and paleontological activities in the Monthly Compliance Report.

PAL-6: The project owner, through the designated PRS, shall ensure the recovery, preparation for analysis, analysis, identification and inventory, the preparation for curation, and the delivery for curation of all significant paleontological resource materials encountered and collected during the monitoring, data recovery, mapping, and mitigation activities related to the project.

Verification: The project owner shall maintain in their compliance file copies of signed contracts or agreements with the designated PRS and other qualified research specialists. The project owner shall maintain these files for a period of three years after completion and approval of the CPM-approved PRR. The project owner shall be responsible to pay curation fees for fossils collected and curated as a result of paleontological monitoring and mitigation.

PAL-7: The project owner shall ensure preparation of a Paleontological Resources Report (PRR) by the designated PRS. The PRR shall be prepared following completion of the ground disturbing activities. The PRR shall include an analysis of the recovered fossil materials and related information and submitted to the CPM for review and approval.

The report shall include, but not be limited to, a description and inventory of recovered fossil materials; a map showing the location of paleontological resources encountered; determinations of sensitivity and significance; and a statement by the PRS that project impacts to paleontological resources have been mitigated.

Verification: Within ninety (90) days after completion of ground disturbing activities, including landscaping, the project owner shall submit the Paleontological Resources Report under confidential cover.

Certification of Completion of Worker Environmental Awareness Program

EL SEGUNDO POWER REDEVELOPMENT PROJECT (00-AFC-14)

This is to certify these individuals have completed a mandatory California Energy Commission-approved Worker Environmental Awareness Program (WEAP). The WEAP includes pertinent information on Cultural, Paleontology & Biology Resources for all personnel (i.e. construction supervisors, crews and plant operators) working on-site or at related facilities. By signing below, the participant indicates that they understand and shall abide by the guidelines set forth in the Program materials. Please include this completed form in your Monthly Compliance Report.

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Cul Trainer: _____ Signature: _____ Date: ____/____/____
PaleoTrainer: _____ Signature: _____ Date: ____/____/____
Bio Trainer: _____ Signature: _____ Date: ____/____/____

LAWS, ORDINANCES, REGULATIONS & STANDARDS GEOLOGY

APPLICABLE LAW	DESCRIPTION
<i>FEDERAL</i>	
There are no Federal LORS related to geological hazards and resources.	N/A
<i>STATE</i>	
Uniform Building Code	Specifies acceptable design criteria for storage and open excavation with respect to seismic design and load bearing capacity.
California Building Code 1195	Specifies acceptable design criteria for storage and open excavation with respect to seismic design and load-bearing capacity.
<i>LOCAL</i>	
No local LORS related to geologic hazards and resources.	N/A

PALEONTOLOGICAL RESOURCES

APPLICABLE LAW	DESCRIPTION
<i>FEDERAL</i>	
There are no applicable LORS for this section.	
<i>STATE</i>	
California Environmental Quality Act	Defines significant impacts on a fossil site. Project construction might encounter fossil site/remains.
Public Resource Code Section 5097.5	Defines any unauthorized disturbance or removal of fossil site/remains on public land as a misdemeanor. Project construction might encounter fossil site/remains; construction workers might remove fossil remains.

Warren-Alquist Act	Requires CEC to evaluate energy facility siting in unique areas of scientific concern. Project construction might encounter fossil site/remains.
<i>LOCAL</i>	
There are no applicable LORS for this section.	

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HAZARDOUS MATERIALS – Summary of Findings and Conditions

Transportation	MITIGATION	None	YES
	<p><u>Construction:</u> Hazardous materials delivered during construction will be limited to gasoline, diesel fuel, motor oil, hydraulic fluid, solvents, cleaners, sealants welding flux, lubricants, paint and paint thinner. No acutely hazardous materials will be transported to the power plant site.</p> <p><u>Operation:</u> There will be a negligible increase in truck deliveries per month to the power plant site of hazardous materials, and a decrease of materials such as aqueous ammonia, for the operation of new units 5, 6, and 7. Deliveries of hazardous materials are over pre-arranged routes selected for their safety features, including the absence of obstructions and curves, and minimal railroad traffic.</p> <p>MITIGATION:</p> <p><input checked="" type="checkbox"/> Haulers will be specially licensed by the California Highway Patrol. Condition: TRANS-3.</p> <p><i>References: AFC p. 5.15-2-9.</i></p>		
Storage & Use	MITIGATION	None	YES
	<p><u>Construction:</u> No acutely hazardous materials related to construction will be used or stored on-site at the power plant. Some materials designated as hazardous such as gasoline, diesel fuel, motor oil, hydraulic fluid, solvents, cleaners, sealants welding flux, lubricants, paint and paint thinner will be used at the construction-site. Given the nature of these substances, the risk of off-site exposure is insignificant.</p> <p><u>Operation:</u> Hazardous and acutely hazardous material, such as aqueous ammonia, hydrazine, and natural gas will be used for power plant operation. Tank <u>or pipeline</u> ruptures or delivery spills are the only means by which there will be off-site exposure of on-site aqueous ammonia. The Project Owners have an approved Risk Management Plan that will be updated to reflect the project.</p> <p>Natural gas is currently delivered to the existing facility by pipeline and will not be stored on-site.</p> <p>MITIGATION:</p> <p><input checked="" type="checkbox"/> The Project Owner shall not store and use amounts of acutely hazardous materials in excess of proposed quantities. Condition: HAZ-1</p> <p><input checked="" type="checkbox"/> The Project Owner will update its Business Plan and Risk Management Plan. Conditions: HAZ-2 & HAZ-3</p> <p><input checked="" type="checkbox"/> The Project Owner will undertake a feasibility study of alternatives to hydrazine. Condition: HAZ-4</p> <p><i>References: AFC § 5.15; FSA Hazardous Materials, p. 4.4-3-9.</i></p>		

Disposal	MITIGATION	None	YES
	<p>The facility currently has an approved, comprehensive program to manage wastes in accordance with state and federal regulations. Hazardous wastes will be collected by a licensed hazardous waste hauler and disposed of at a hazardous waste facility. (See WASTE MANAGEMENT section.)</p> <p><i>Reference: AFC § 5.15</i></p>		

HAZARDOUS MATERIALS – GENERAL

The purpose of this analysis is to determine if the proposed project will cause a potential significant impact on the public as a result of the transportation, use, handling, storage, or disposal of hazardous materials at the proposed facility.

This analysis does not address potential exposure of workers to hazardous materials used at the proposed facility. (See **WORKER SAFETY**.) There are specific regulations applicable to protection of workers in general. The standards for exposure and methods used to protect workers are very different from those applicable to the general public. Employers must inform employees of hazards associated with their work and workers accept a higher level of risk than the general public in exchange for compensation. Workers are thus not afforded the same level of protection normally provided to the public. Further, special protective equipment and training can be used to protect workers and reduce the potential for health impacts associated with the handling of hazardous materials. Application of this type of mitigation would not be appropriate for the general public.

For additional information regarding hazardous materials transportation, see **TRAFFIC & TRANSPORTATION**. For additional information on hazardous waste disposal, see **WASTE MANAGEMENT**.

Transportation

There will be a negligible increase in deliveries per month to the power plant site of hazardous materials, such as aqueous ammonia (in the event of a pipeline shutdown), for the operation of the combined cycle facility. (AFC pp. 5.11-11-15.)

MITIGATION:

- ☒ Hazardous materials haulers must be specially licensed by the California Highway Patrol. Condition: **TRANS-3**; see also **TRAFFIC & TRANSPORTATION** section.

Storage & Use

Provisions of California Health and Safety Code, section 25500 et seq., direct facility owners that store or handle acutely hazardous materials in excess of threshold quantities to develop a Risk Management Plan (RMP) and submit it to appropriate local authorities, the US EPA, and the designated local Administering Agency for review and approval. The plan must include an evaluation of the potential impacts associated with an accidental release, the

likelihood of an accidental release, the magnitude of potential human exposure, any preexisting evaluations or studies of the material, and the accident history of the material. This new, recently developed program supersedes the California Risk Management and Prevention Plan (RMPP) and is called the California Accidental Release Prevention Program (CalARP). The City of El Segundo Fire Department is designated as the local implementing agency under this program.

The only hazardous materials proposed for use at the project in quantities exceeding the threshold amount is aqueous ammonia. (AFC p. 5.15-11).

Aqueous Ammonia

The project will use Selective Catalytic Reduction (SCR) to reduce combustion-generated nitrogen oxide (NOx) emissions to comply with air permit requirements. Aqueous ammonia (29% ammonia and 71% water) will be used as a reactant within a catalyst to reduce the NOx to water vapor and nitrogen. The ammonia will be stored in a 20,000 gallon capacity double walled underground storage tank which is equipped with leak detectors, pressure relief valves and gauges for temperature and pressure. Aqueous ammonia will be delivered through a new pipeline from the neighboring Chevron facility. The pipeline will be designed and built in accordance with current engineering standards and requirements. The bulk of the pipeline will be aboveground with about 15 percent being located underground ~~during its routing under Vista del Mar~~. The underground sections of the pipeline will be engineered to minimize corrosion effects. Valves and other measures will be utilized on the entire pipeline to prevent releases of ammonia. The ammonia will be trucked in should the pipeline be down for any reason.

The use of aqueous ammonia significantly reduces the risk that would otherwise be associated with use of the more economical anhydrous form of ammonia. Use of the aqueous form eliminates the high internal energy associated with the more hazardous anhydrous form, which is stored as a liquefied gas at high pressure. The high pressure and resultant latent internal energy associated with the anhydrous form of ammonia can act as a driving force in the event of an accidental release. Loss of containment involving anhydrous ammonia typically results in violent release and can rapidly introduce large quantities of the material into the ambient air, where it can be transported by the atmosphere and result in high down-wind concentrations. Spills associated with the aqueous form are typically much less violent and easier to contain. In addition, the emission rate from a release of aqueous ammonia is limited by mass transfer from the free surface of the spilled material, thus reducing the rate of emission to the atmosphere.

Large accidental and continuous releases of aqueous ammonia culminating in potentially catastrophic outcomes to the public are possible through three potential accidents: (1) failure of the underground storage tank, (2) failure of the operating pipeline, and (3) tanker truck delivery accident. Energy Commission staff typically evaluates four "bench mark" exposure levels of ammonia gas that occur off-site in parts per million (PPM). These include: 1) the lowest concentration posing a risk of lethality, 2,000 PPM; 2) the Immediately Dangerous to Life and Health level (IDLH) of 300 PPM; 3) the Emergency Response Planning Guideline (ERPG) level 2 of 150 PPM (recently changed from 200 PPM), which is also the RMP level 1

criterion used by EPA and California; and 4) the level considered by the Energy Commission staff to be without serious adverse effects on the public for a one-time exposure of 75 PPM.

If the exposure associated with a potential release would exceed 75 PPM at any public receptor, staff will presume that the potential release poses a risk of significant impact. However, staff may also assess the probability of occurrence of the release and/or the nature of the potentially exposed population. Staff may, based on such analysis, determine that the likelihood and extent of potential exposure are not sufficient to support a finding of potentially significant impact.

The ammonia underground storage tank is double walled with pressure relief valves and overlain by soil overburden. High operating pressures would not be used to store the aqueous ammonia in the tank. Consequently, any rupture or puncture of the tank would not be capable of blowing away the soil overburden resulting in large releases of ammonia. Instead, in the event of a release, the ammonia would enter the surrounding atmosphere with very little momentum and velocity. Risks to the public from such an accident would therefore be minimally low.

The other two ammonia accident scenarios were modeled and evaluated by the Applicant. The modeling was done in accordance with USEPA RMP and CalARP requirements. The modeling reflects a unique combination of wind direction speed, and atmospheric stability conditions. A 75-ppm impact area with a radius of approximately 1060 feet (0.2 miles) was determined for the pipeline release scenario and an impact area with a radius of approximately 2450 feet (0.5 miles) was forecast for the tanker truck scenario. Sections of Vista Del Mar and the public beach to the northeast fall within the 1060 feet impact area. The tanker truck scenario's impact area extends to some of the residences to the south and portions of the Vista Del Mar and the public beach. The Applicant conducted a risk analysis to estimate the potentials for both scenarios. The analysis suggests that there is a chance of 0.0000063 of an accident involving an ammonia release due to a major release from the ammonia pipeline in any particular year. Similarly, the probability of a major ammonia release due to a tanker truck unloading accident is 0.000038 on an annual basis. It is assumed that the ammonia release stems from the failure of a hose due to operator error during the unloading/delivery.

Both scenarios appear rather remote for the following reasons. A worst-case approach has been used for both scenarios. In a worst-case environment, the greatest possible amount of the chemical is assumed to be released from a storage vessel or piping in a fast, rapid motion at the ground level. Active mitigation devices that need mechanical, human or other energy to manage releases must be assumed to have failed. Further, the weather conditions are assumed to be unique and mild. The ammonia modeling for the ESPR project is therefore not only conservative but also pessimistic thereby culminating in outcomes that are overstated.

The USEPA RMP, CalARP and Cal/OSHA PSM programs each individually list threshold-planning quantities for specific hazardous materials. Only materials that met certain toxicological, physical and accident criteria were identified and listed. If the quantity of a material on-site exceeds the threshold amount, the facility needs to implement chemical

accident prevention and preparedness measures that may include a Risk Management Plan (RMP), pursuant to each regulation. The RMP is a detailed engineering analysis of the potential accident factors at a business and the mitigation measures that can be implemented to reduce accident potentials. Of the listed materials for the ESPR project, aqueous ammonia will need to be managed in accordance with the requirements of the CalARP and USEPA RMP Programs, as the maximum amount of that chemical will be above each respective program's threshold. The El Segundo power plant complex currently has chemical accident prevention and preparedness safeguards as required by CalARP and USEPA RMP programs, in place based on its consumption of aqueous ammonia, hydrogen, hydrochloric acid, cyclohexylamine and sulfuric acid. However, the project will result in an increase in the consumption of aqueous ammonia, thereby prompting a revision of the existing safeguards and procedures to reflect that change pursuant to each applicable program. In addition, the current RMP will need to be revised and upgraded to reflect the increased ammonia usage.

The Applicant has indicated that it has safety systems that add several layers of protection and defense between hazardous materials and the public as part of accident prevention. These include but are not limited to use of written plans and procedures for hazardous materials management, fire extinguishing and spill response equipment for emergencies and training programs for plant personnel in hazardous materials handling.

Supplemental measures to reflect the increased use of aqueous ammonia, combined with the very low probability of accidental release reduce to insignificance the opportunity for, or extent of, public exposure to ammonia. (AFC p. 5.15-11-18; FSA Hazardous Materials, pp. 4.4-3-5.)

Hydrazine

Hydrazine will be stored and used onsite for the ESPR project as an oxygen scavenger in boiler water treatment. Its formulation will consist of 35 percent hydrazine and 65 percent water culminating in an approximate 4:1 solution of hydrazine in water.

Unlike ammonia, which is only toxic, hydrazine is also corrosive and flammable in addition to being toxic. Though it will be stored and used in amounts less than the CalARP thresholds, hydrazine requires special storage and handling in order to avoid or minimize impacts from accidental release, given hydrazine's unique characteristics. The Applicant has indicated that passive mitigation in the form of secondary containment will be available to control any hydrazine release in the storage area. This is important, as the containment would reduce the size of the pooled hydrazine thereby resulting in a smaller vapor cloud. However, additional precautions for hydrazine storage and handling, as outlined in the Conditions of Certification **HAZ-4**, need to be considered in addition to those proposed by the Applicant in order to prudently reduce or eliminate any potential risks posed by hydrazine.

Alternatively, less hazardous and benign substitutes to hydrazine are available commercially. Use of these substitutes will virtually eliminate all potential risks associated with hydrazine. The Applicant has indicated that a feasibility study will be undertaken, during the project's detailed design phase, to evaluate substitution of hydrazine with a less hazardous alternative. (FSA p. Hazardous Materials, 4.4-5.)

Other Materials

Other hazardous materials stored in smaller quantities, such as mineral and lubricating oils, corrosion inhibitors, water conditioners and hydrogen are already present and are properly stored at the site. These materials pose no significant potential for off-site impacts as a result of the quantities on-site, their relative toxicity, and/or their environmental mobility. (AFC p. 5.15-4, 13.)

Natural Gas

Natural gas poses some risk of both fire and explosion. Although no natural gas is stored on-site, the project will use natural gas in its operation. While natural gas will be used in significant quantities, it will not be stored on-site except for that amount contained within the delivery pipeline. No changes are needed to the existing piping network for the project. The risk of a fire and/or explosion from natural gas can be reduced to insignificant levels through adherence to applicable codes and the development and implementation of effective safety management practices. (AFC p. 5.15-10; FSA Hazardous Materials, p. 4.4-6.)

MITIGATION:

- ☑ The Project Owner shall not store and use amounts of acutely hazardous materials in excess of proposed quantities. Condition: **HAZ-1**
- ☑ The Project Owner will update its Business Plan and Risk Management Plan. Conditions: **HAZ-2 & HAZ-3**
- ☑ The Project Owner will undertake a feasibility study of alternatives to hydrazine. Condition: **HAZ-4**

Disposal

Hazardous waste generated by the power plant will be minimal. The existing power plant complex currently has an approved, comprehensive program to manage wastes in accordance with state and federal regulations. Hazardous wastes will be collected by a licensed hazardous waste hauler and disposed of at a hazardous waste facility. Hazardous wastes will be transported off-site using a hazardous waste manifest, copies of which will be maintained for three years. (AFC p. 5.14-23). (See also **WASTE MANAGEMENT**.)

Cumulative Impacts

The hazardous material with the greatest potential to migrate off-site is aqueous ammonia. To determine the potential for cumulative impacts, an attempt was made to identify sites that handle ammonia and would potentially create a cumulative ammonia impact in combination with the proposed project and other sites in the project vicinity that use substances that react negatively with ammonia. No such businesses were identified. (AFC p. 5.15-18; FSA Waste Mgt., p. 4.4-6).

Findings

With the implementation of the Conditions of Certification, below, the project conforms to applicable laws related to hazardous materials management and all potential adverse impacts related to hazardous materials management will be mitigated to insignificance.

CONDITIONS OF CERTIFICATION

HAZARDOUS MATERIALS INVENTORY

HAZ-1 The project owner shall obtain the advance approval of the CPM if the facility intends to store, handle, use or move (or combination of these activities) a material, in quantities that exceed those specified in Title 40, CFR Part 355, Subpart J section 355.50.

Verification: The project owner shall provide to the CPM, in the Annual Compliance Report, a list of those hazardous materials designated as regulated substances as set forth in Title 40, CFR Part 355, Subpart J section 355.50. The list shall also include maximum quantities of these substances at the facility. Copies of the list should also be provided to the City of El Segundo Fire Department (CESFD) and the City of Manhattan Beach Fire Department (CMBFD).

BUSINESS PLAN REVISION

HAZ-2 The project owner shall update its existing Business Plan.

Verification: At least 45 days prior to the start-up of the ESPR project Units 5, 6 and 7, the owner shall undertake a hazardous materials floor plan exercise for each shift at the plant with the CESFD and provide a copy of the revised Business Plan, commented on by the CESFD, to the CPM. A copy of the revised Plan shall also be provided to the CMBFD.

RISK MANAGEMENT PLAN REVISION

HAZ-3 The project owner shall revise the existing CalARP Program Risk Management Plan (RMP). Similarly, the project owner shall also revise its existing RMP pursuant to the USEPA RMP Program. Both RMPs shall be expanded to include discussions to prevent and control the accidental release of ammonia from the pipeline. Those discussions shall elaborate on the various safety devices selected for the pipeline including double sleeve construction, provisions for backup safety devices, protective shut-in actions, emergency support systems, monitoring programs and personnel training, as a minimum. The shut-in actions shall include responses to pipeline overpressures and also leaks. Backup safety devices to be considered for the pipeline shall include sprinklers, sprays, deluge systems or equivalent systems. Special emphasis shall be placed on the deployment of such devices in the vicinity of the

overpass at Vista Del Mar Boulevard in order to eliminate any vulnerabilities at that location.

Verification: At least 45 days prior to start-up of Units 5, 6, and 7, the project owner shall furnish a final copy of each updated RMP to the CPM, CESFD and CMBFD. An initial draft of the CalARP RMP shall be provided to the CPM and the CESFD for review and comments. The final CalARP RMP shall be approved by the CPM. Similarly, an initial draft of the USEPA RMP shall be provided to the CPM and the CESFD for review and comments, at the time it is submitted to the USEPA for review. The final copy of the USEPA RMP shall reflect recommendations of the CPM and the CESFD.

HYDRAZINE ALTERNATIVES FEASIBILITY STUDY

HAZ-4 The project owner shall undertake a feasibility study for the substitution of the 35% hydrazine with a less hazardous chemical. Should the study conclude that substitution is infeasible ~~and~~ or the project owner elects to continue the use of the 35% hydrazine, then the project owner shall develop and prepare a safety management plan focusing on the storage and handling of the hydrazine and the associated protective equipment requirements, handling techniques, personnel training, spill response procedures, detectors and alarms, as a minimum.

Verification: At least 45 days prior to start-up of Units 5, 6, and 7, the project owner shall furnish a final copy of either the feasibility study or the hydrazine storage and handling management plan, as appropriate, to the CPM, CESFD and CMBFD. All initial drafts shall be reviewed and commented upon by the CPM and CESFD. All final copies shall be approved by the CPM.

LAWS, ORDINANCES, REGULATIONS & STANDARDS

HAZARDOUS MATERIALS

APPLICABLE LAW	DESCRIPTION
<i>FEDERAL</i>	
Clean Air Act (40 CFR 68)	Requires a RMP if listed hazardous materials are stored above threshold quantities (TQ).
Clean Water Act (40 CFR 112)	Requires preparation of an SPCC plan if oil is stored above TQ.
SARA Title III, Section 302	Requires certain planning activities when EHSs are present in excess of TQ. Aqueous ammonia to be used onsite in excess of TQ.
SARA Title III, Section 311	MSDSs to be kept onsite for each hazardous material. Required to be submitted to SERC, LEPC and local fire department.
SARA Title III, Section 313	Requires annual reporting of releases of hazardous materials.
49 CFR 171-177	Governs the transportation of hazardous materials, including the marking of the transportation vehicles.
<i>STATE</i>	
Health & Safety Code §25500, et seq. (Waters Bill)	Requires preparation of HMBP if hazardous materials are handled or stored in excess of threshold quantities.
Health & Safety Code §25531, et seq.	Requires registration of facility with local authorities and preparation of RMP if hazardous materials stored or handled in excess of threshold quantities.
CCR Title 8, Section 5189	Facility owners are required to implement safety management plans to ensure safe handling of hazardous materials.
California Building Code	Requirements regarding the storage and handling of hazardous materials.
California Government Code, Section 65850.2	Restricts issuance of COD until facility has submitted a RMP.

<i>LOCAL</i>	
City of El Segundo Ordinances, § 1088, 1264, 1280 & 1285	Provides for the storage and handling of hazardous materials.

LAND USE – Summary of Findings and Conditions

	POWER PLANT SITE	CUMULATIVE IMPACTS	LORS COMPLIANCE
General/Special Plans	CONDITION	None	YES
	<p>The project conforms to the Coastal Act requirements by using an existing power plant site, not interfering with public access to beaches, and continuing dependency on ocean water for power plant cooling. Additionally, the project conforms to the "Power Plant" designation for the site in the El Segundo Local Coastal Program. The project's pipelines buried in nearby streets conform to General Plan requirements.</p> <p>CONDITION:</p> <p><input checked="" type="checkbox"/> The project owner shall not interfere with public access to beach parking while constructing the sewer pipeline or by unauthorized use of parking lots by construction workers. Conditions: TRANS-5 and LAND-4</p> <p><i>References: AFC p. 5.9-2, 23-25; FSA Land Use p. 4.5-3, 4, 9-17.</i></p>		
Zoning	CONDITION	None	YES
	<p>The project structures conform to the El Segundo M2 Zoning Ordinance 200-foot height restrictions, and the 205-foot exhaust stacks are exempt from height limitations. The underground pipelines are not subject to any known zoning requirement.</p> <p>CONDITION:</p> <p><input checked="" type="checkbox"/> The project owner shall comply with El Segundo M2 Zoning Ordinance design and performance requirements, and additionally parking standards and signage requirements. Condition of Certification LAND-1</p> <p><i>References: AFC p. 5.9-3, 7-8; FSA Land Use p. 4.5-17.</i></p>		
Open Space	None	None	YES
	<p>The Applicant will enhance the existing beach bike path by moving its fence back three feet from the path and installing park-type benches and landscaping. Additionally, the Applicant will construct a sea wall to help screen ground-level views of the project from the bike path.</p> <p><i>References: FSA Land Use p. 4.5-11-12.</i></p>		

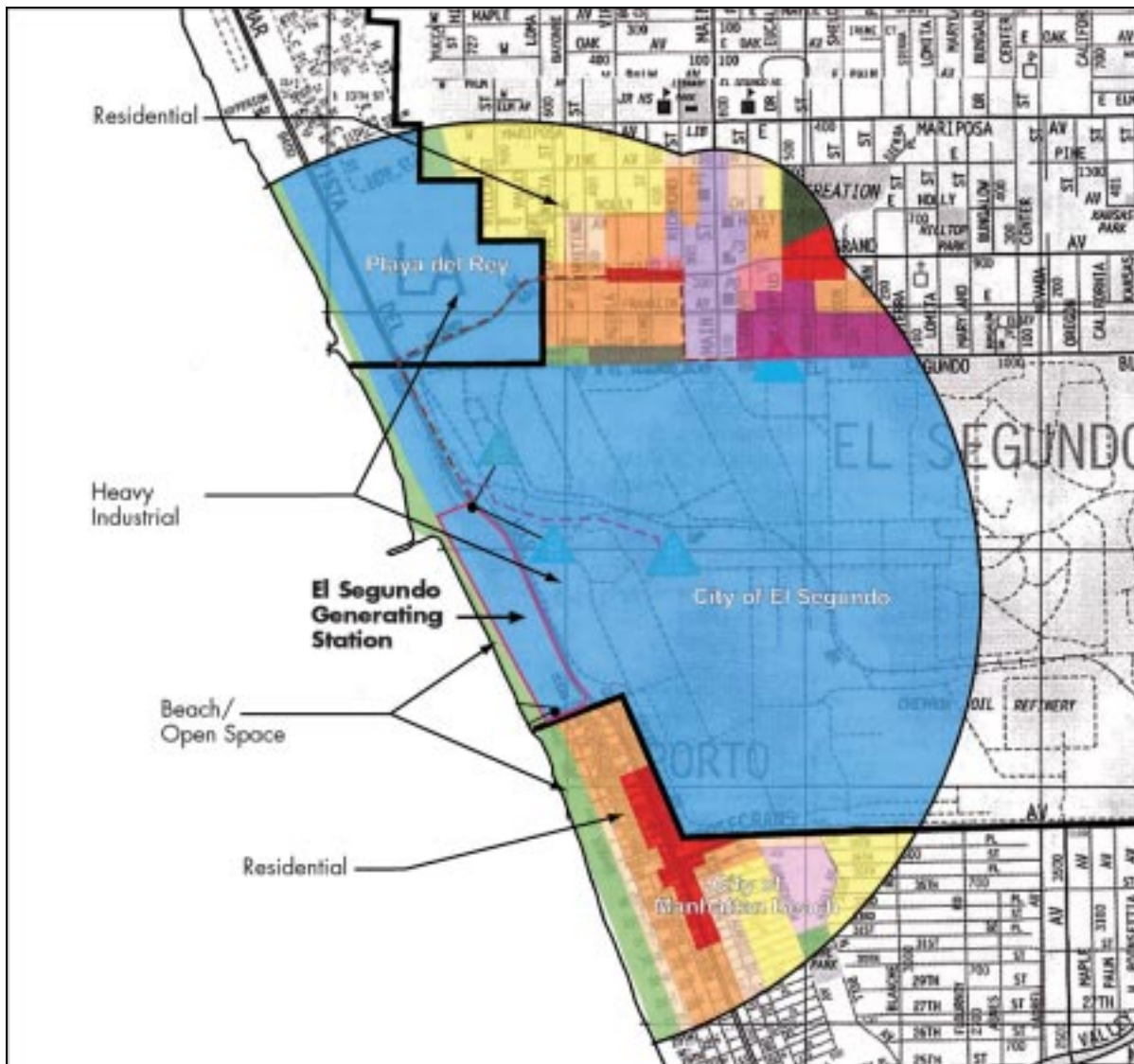
Existing/ Planned Uses	CONDITION	None	YES
	<p>Not only is the power plant consistent with the El Segundo Local Coastal Program and Zoning Ordinance, it is compatible with the industrial uses north and east of the project. After project construction, Applicant plans to demolish two existing oil tanks and use the space for parking. Potential project-related air quality, public health, noise, visual and traffic impacts to neighboring residences south of the project have been mitigated to a level of insignificance.</p> <p>CONDITION:</p> <p><input checked="" type="checkbox"/> The Project Owner shall submit any future development plans for the tank farm area to the Cities of El Segundo and Manhattan Beach and the Coastal Commission. Condition of Certification LAND-5</p> <p><i>References: AFC p. 5.9-23-25; Land Use FSA pp. 4.5-17-20.</i></p>		

LAND USE - GENERAL

Land uses are controlled and regulated by a system of plans, policies, goals, and ordinances that are adopted by the various jurisdictions with land use authority over the area encompassed by the proposed project.

The project site is located on approximately 4,200 linear feet of coastline within the City of El Segundo. The site is bound by the Chevron refinery to the east; Santa Monica Bay, including Dockweiler State Beach and a Los Angeles County-maintained bicycle path to the west; a residential district in the City of Manhattan Beach to the south; and the Chevron Marine Terminal to the north. There are no agricultural lands within the region. Consequently, the project and its associated pipelines are subject to land use plans for the Coastal Zone administered by the California Coastal Commission, and the Cities of El Segundo and Manhattan Beach, and Los Angeles.

Southern California Edison Company operated the El Segundo Generating Station from 1955 until its sale to the current project owner in 1998. The power plant complex currently contains four gas-fired conventional generating units on the northern portion of the site and two fuel oil storage tanks on the southern portion of the site. A Southern California Edison-owned substation is located adjacent to the project site and is connected to the regional electrical transmission grid. Existing land uses within one mile of the project site are shown below.



According to the Guidelines to the California Environmental Quality Act (CEQA), a project may have a significant effect on land use and planning if a proposed project would:

- conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect;
- disrupt or divide the physical arrangement of an established community; or
- convert Prime Farmland, Farmland of Statewide Importance, or Unique Farmland to non-agricultural use.

A project may also have a significant impact on land use if it would create unmitigated noise, dust, public health hazard or nuisance, traffic, or visual impacts or when it precludes or unduly restricts existing or planned future uses. (AFC p. 5.9-2; FSA Land Use p. 4.5-4, 5.)

General/Specific Plans

Coastal Zone

The California Coastal Act establishes a comprehensive scheme to govern land use planning along the entire California coast (Pub. Resources Code, §30000 et seq.). The following sections of the Act are relevant to energy facilities:

1. **Use of Existing Power Plant Sites:** Section 30260 encourages the use of existing coastal-dependent industrial sites within the Coastal Zone instead of using undeveloped areas of the Coastal Zone;
2. **Coastal Access:** Section 30211 requires that new development not interfere with the public's right of access to the shoreline, where the access has been previously acquired by a federal, state, or local government authorization; and
3. **Coastal Dependent Use:** Section 30101 defines a "Coastal-dependent development or use" as: "any development or use which requires a site on, or adjacent to, the sea to be able to function at all." In accordance with the California Coastal Act, the City of El Segundo Local Coastal Program, and the City of El Segundo's Council Resolution No. 3005, the primary industrial land uses in the Coastal Zone are to be coastal dependent uses as defined by the Coastal Act.

Consistency and Suitability Report

The California Coastal Act (CCA) requires the Coastal Commission to prepare a consistency and suitability report to the Energy Commission on any new power generating facility proposed to be located within the designated Coastal Zone. The consistency and suitability report includes findings on the "conformance of the proposed site and related facilities with the certified coastal programs in those jurisdictions which would be affected by any such development [and] the degree to which the proposed site and related facilities could reasonably be modified so as to mitigate potential adverse effects on coastal resources, minimize conflict with existing or planned coastal-dependent uses at or near the site, and promote the policies of this division." [Pub. Resources Code §30413 (d)(5) and (d)(6).]

The Energy Commission must include in its decision the provisions recommended by the Coastal Commission in its section 30413 report, unless the Energy Commission determines that adoption of these provisions would result in a greater adverse effect on the environment or that the provisions would not be feasible for the project [Pub. Resources Code, §25523(b).]

The 33 acre El Segundo Generating Station property is within the Coastal Zone. The City of El Segundo adopted its Local Coastal Program (LCP) on July 1, 1980. The Coastal Commission certified the LCP on February 4, 1982. The El Segundo LCP incorporated several policies of the California Coastal Act, specifically Chapter 3: Coastal Resources

Planning And Management Policies, including those that pertain to thermal electric generating plants.

1. **Use of Existing Power Plant Sites:** The proposed project, which replaces existing units, would be located entirely within the 33-acre power plant complex. Consequently, the project is consistent with that portion of the Coastal Act's Section 30260 that prefers onsite expansion of existing power plants to development of new power plants in currently undeveloped areas of the Coastal Zone.
2. **Coastal Access:** Consistent with the Coastal Act's requirement for maintenance of public access, the proposed project does not interfere with access to the beach. Currently, there is public access to Dockweiler State Beach and Manhattan State Beach. Coastal access is also available by means of a County-maintained bicycle path that runs along the beachfront (westerly) side of the power plant property. The path links other beach access areas located to the north and to the south of the project site.

The Applicant is providing public use area(s) along the perimeter of the project's west property line that borders the bicycle path and Dockweiler State Beach. The Applicant will be relocating the existing fence three feet back from its current location to allow the installation of public park type benches and landscaping along the bicycle path. The public use land area(s) will continue to be owned and maintained by the Applicant. The proposed landscaping along the bicycle path will include small trees and flowering shrubs. The Applicant is also proposing to install a concrete sea wall to help screen ground level views of the power plant from the bike path.

3. **Coastal Dependent Use:** Currently, cooling water for the existing facility is provided by two separate intake structures in Santa Monica Bay. The cooling water supply for the proposed project would use Outfall No. 001. Units 3 and 4 would continue to use the second, separate existing sea water intake (Outfall No. 002) to provide cooling water. Since the proposed project would be obtaining cooling water from the ocean, the project would remain consistent with the Coastal-dependent use definition.

California State Lands Commission Lease

The California State Lands Commission (SLC) has exclusive jurisdiction over all non-granted tidelands and submerged lands owned by the State (Pub. Resources Code, sections 6216 and 6301).

The two cooling water intake and outfall structures at the El Segundo Generating Station property are on tideland and submerged land owned and administered by the State of California. The Applicant has an executed lease with the State of California. The executed lease (No. 858.1 Public Resources Code Series, Ser. 18736A) expired on October 27, 2002 and the use of the property has continued on a month to month basis. The project owner filed an application with the SLC requesting a modification of the existing lease or creation of a new lease, which is pending review. Notwithstanding the stated expiration date in the lease, the actual termination of a SLC lease does not occur until such time as the SLC will formally

act to terminate it. As long as the Applicant continues to operate in compliance with the original executed lease, the SLC would permit the operation/use to continue on a month-to-month basis until a new lease is executed. That is exactly what has occurred. For these reasons, the Commission is satisfied that the Applicant has adequate lease rights to proceed with the project.

Energy Commission staff had recommended a condition that compelled that a new lease be obtained prior to commercial operation of the project. Since new leases are likely going to be for shorter terms than the previous 50 year lease, the Commission is more concerned that the project owner be required to maintain lease rights for the duration of the project's life. A month-to-month lease will suffice during periods between longer term leases. Thus, the Commission has modified the suggested condition to require that the project owner maintain lease rights and keep the CPM informed as to periodic lease renewal efforts and results.

CONDITION:

- ☒ The project owner shall maintain a lease for the state owned land upon which the cooling system structures rest. **LAND-8.**

Local

The proposed project will affect three local jurisdictions: 1) the City of El Segundo, 2) the City of Manhattan Beach and 3) the City of Los Angeles and its Playa Del Rey community.

City of El Segundo - General Plan/LCP

The City of El Segundo Local Coastal Program (LCP) was adopted in July, 1980, and certified by the Coastal Commission in February, 1982. The LCP is El Segundo's land use plan, zoning ordinance, and zoning district map for the Coastal Zone. The Coastal Zone within the City's jurisdiction is defined as a narrow strip of land approximately 200 yards wide, which includes the existing ESGS. In this area, the City of El Segundo certified LCP supersedes the City's General Plan Land Use Element land use designations and policies. The Local Coastal Program land use designation for the project site is "Power Plant". The proposed power plant is an allowed use in this designation. Therefore, this use is consistent with the Local Coastal Program.

The project's water pipelines, aqueous ammonia pipeline, and sewer pipeline are consistent with the El Segundo General Plan, Goal LU 7: Provision of Quality Infrastructure.

The Kramer and Chevron staging areas are within the City (see Project Description) and used for light and heavy industrial uses, respectively. The use of these staging areas is consistent with current uses.

City of Los Angeles - General Plan

The project includes water pipelines that would be built partially within the City of Los Angeles on Grand Avenue. The City of Los Angeles General Plan designates the area around Grand Avenue as "Heavy Industrial". Subsurface water lines are acceptable in this area. The Los Angeles General Plan does not provide any policies, regulations or standards related to construction of water lines within the public right-of-way. An excavation permit is required for the proposed water lines from the City's West Los Angeles Bureau of Engineers.

The Grand Avenue parking area, LAX-Pershing parking and staging area, and Marina del Rey parking area are within the City of Los Angeles can be used consistently with the current land uses in the area. The City of Los Angeles and the State of California both have jurisdiction over the Dockweiler State Beach parking area and the Hyperion parking area. These sites could serve as worker parking since the sites already have open-air public parking.

City of Manhattan Beach - General Plan

The project includes a new sewer line that would be built partially within the City of Manhattan Beach. The City of Manhattan Beach General Plan does not provide any policies relevant to construction of a sewer line within the public right-of-way. An encroachment permit is required from the City's Public Works Department for the sewer line connection. (AFC p. 5.9-7, 8; FSA Land Use, p. 4.5-17.)

Zoning Ordinances

El Segundo Zoning Ordinance

El Segundo's Local Coastal Program specifies that modifications to existing facilities shall be subject to the requirements of El Segundo's M2 Zone District. The M2 Zone District identifies steam electric generating stations as a permitted use. The proposed project is, therefore, consistent with the use requirements of the El Segundo Zoning Ordinance.

Permitted uses in the M2 Zone "shall not be objectionable by reason of noise, odor, dust, smoke, mud, vibration, refuse, or other similar causes" (Section 20.42.030 (3) El Segundo Zoning Ordinance). Project impacts in these areas would be less than significant after mitigation measures have been implemented. See **NOISE, AIR QUALITY, and PUBLIC HEALTH**.

El Segundo's (M2) Zone District height restrictions state that buildings and structures shall not exceed a height of 200 feet. However, an exception allows chimneys and smokestacks to be erected above the 200 feet height limit. Therefore, the project's 205-foot high exhaust stacks and buildings would be consistent with the zone district height requirements.

Other applicable portions of the El Segundo Zoning Ordinance include requirements related to permanent and temporary signage and parking.

CONDITION:

- ☒ The project owner shall comply with El Segundo Zoning Ordinance design and performance requirements, and additionally parking standards and signage requirements. **LAND-1.**

City of Los Angeles Municipal Code

The City of Los Angeles zone regulations (City of Los Angeles Municipal Code Section 12.20.) apply to the area where the water pipelines are proposed in the City of Los Angeles.

However, the document does not provide regulations related to construction and operation of a water pipeline within the public right-of-way.

Manhattan Beach Municipal Code

The City of Manhattan Beach Zoning Ordinance does not provide any regulations relevant to construction of a sewer pipeline within the public right-of-way. The City expressed concern that construction of the sewer line would reduce access to the parking lot on the beach. As a result, the Applicant has agreed to place an iron plate over the trenching/excavation to maintain beach access or to bore an underground connection to the manhole located in the Strand parking lot. (AFC p. 5.9-3, 7-8; FSA Land Use, p. 4.5-17.)

Open Space

Consistent with the Coastal Act's requirement for maintenance of public access, the proposed project does not interfere with access to the beach. Currently, there is public access to Dockweiler State Beach and Manhattan State Beach. Coastal access is also available by means of a Los Angeles County-maintained bicycle path that runs along the beachfront (westerly) side of the power plant property. The path links other beach access areas located to the north and to the south of the project site. There is also public access to El Segundo Beach, located west of the Chevron Marine Terminal, between Dockweiler State Beach and Manhattan State Beach.

Public access to Manhattan State Beach from 45th Street and the Strand public parking area could be affected by the construction of the project's sewer pipeline connection since the parking lot entrance is narrow and trenching/excavations would be in an area that could block access. However, there would be sufficient room in the parking lot driveway for a single lane to be kept open at all times during construction.

The project owner is considering temporary use of Dockweiler State Beach, Hyperion, and Grand Avenue as temporary back-up construction worker parking lots. (See **TRAFFIC & TRANSPORTATION**) The Los Angeles County Department of Beaches and Harbors operates these parking lots subject to Coastal Commission oversight. The Los Angeles County Department of Beaches and Harbors would review Applicant's possible use the parking lots for construction parking and would not allow that use to interfere with public access to the beach.

Public Access Area

The City of El Segundo presented testimony requesting dedication of approximately 1.2 acres on the southwest corner of the ESGS property to public access in order for the project to conform to the City's General Plan. (RT 2/20/03 38:17-42:22) This would be in addition to the increase of public access area by the Applicant's moving the fence on the west edge of the property back three feet and providing park-type benches along the existing bicycle path. The City also intends that this public use property is necessary to satisfy the terms of Public Resources Code section 25529, requiring that projects in the coastal zone establish a public use area. The City would be willing to negotiate with the Applicant the ownership, maintenance and security of the public use area.

Energy Commission staff testified that it had security concerns, which section 25529 takes into account, about unrestricted access to a public use area, particularly if it is not fenced. (2/20 RT 51:4-55:10) The Applicant contends that section 25529 is satisfied with its moving of the fence and installation of park-type benches along the bike path, which by County ordinance is not intended for pedestrian use. Historically, Southern California Edison (SCE) and Chevron granted public access when the bicycle path was created and thereafter confirmed in El Segundo's Local Coastal Program. The Applicant has negotiated with the City about ownership, maintenance, and security of the corner area, without agreement, thus leading to the alternative proposal to move the fence and increase public access. (Applicant's Written Rebuttal Testimony 2/10/03, pp. 3-4.)

The Commission believes that the expansion of the area adjacent to the bicycle path by the Applicant's moving the fence and installing park-type benches is sufficient to meet any requirement of establishing or enhancing public access. The language of Condition **LAND-9** requires designation of public use areas, which would not be limited to the expanded bicycle path. The Commission acknowledges our Staff's security concerns. Fencing, perhaps gating, and hour of access are matters which need to be resolved in favor of the security of the facility, while nonetheless affording access to the coastal resource as also provided by law.

Thus, the Commission is satisfied that Condition **LAND-9** is sufficient to address public access issues. The Commission finds little support for prohibiting pedestrian access to the bike path area, particularly after moving the fence widens it. Repeal or modification of this County ordinance should be considered to allow dual use during certain times of the year.

Existing/Planned Uses

The current development pattern for the project site and the area surrounding it as established by the El Segundo General Plan is for heavy industrial uses.

The El Segundo Generating Station has been operating at this location since 1955. The proposed project would be constructed on the site of the existing power plant facility. The proposed project is compatible with the existing power plant use and neighboring recreational uses that include State owned beaches. The proposed project is also consistent with existing heavy industrial and energy uses to the north and east of the project site. ESGS is adjacent to residential uses to the south located within the City of Manhattan Beach.

Project-related water, reclaimed water, ammonia, and sewage pipelines are all compatible with nearby uses. The water and wastewater supply lines would be constructed in the existing road right-of-way located in commercial, residential, and heavy industrial areas. These pipelines would be constructed according to local engineering requirements and would be buried under the pavement after construction. During construction, there may be some temporary reduction in vehicular access to residences or businesses where pipelines are to be constructed in the public-right-of-way. Since vehicular access is being affected by pipeline construction, a Condition of Certification **TRANS-5** requires residents and businesses be

notified prior to any construction activity. After construction, the land use impacts of the project's pipelines would be insignificant because the pipelines would be buried and would not interfere with adjacent uses.

The existing fuel tank farm area is located on Parcel 2, an approximately 9 acre area that contains two large tanks that were used to store fuel oil used by the original power plants built in the 1950s and 1960s. The fuel tanks are no longer used since the power plant complex switched to natural gas delivered by pipeline.

The Applicant proposes to use Parcel 2 during construction as a laydown and staging area for the project. Upon completion of the project, the existing tanks are to be removed. Parcel 2 is then to be used as an overflow parking area. At this time, the Applicant is not proposing any development on the tank farm area.

Representatives from the Cities of El Segundo and Manhattan Beach and residents of the El Porto community within the City of Manhattan Beach expressed concern with the timing of the removal of the two fuel tanks and the Applicant's plan for future use of the parcel after tank demolition. Specific concerns raised by the El Porto residents pertained to noise and visual effects. The tanks currently provide a noise and visual buffer between residences and the existing Units 3 and 4, which will remain in service.

The Applicant submitted a proposed preliminary Tank Farm Plan that focuses on the demolition process to be used for the tanks and the time (phase) sequence for it. The draft plan describes four phases: Phase I – Preparation of the Tank Farm Area, Phase II – Use of Tank Farm Area During Demolition of Units 1 and 2, Phase III – Use of Tank Farm Area During Construction of the project, and Phase IV: Remediation and Public Benefit.

Major components of the plan include: Use of the tanks as a visual and sound buffer for the El Porto community until an earthen berm can be constructed along the south property line of Parcel 2, and tank farm demolition activity, site and time restrictions. (FSA Land Use, pp. 6-7.)

To the extent any residences could be subjected to increased noise or visual impacts, mitigation has been provided by this Decision which reduces such potential impacts to insignificance. Refer to **NOISE, VISUAL RESOURCES, and TRAFFIC AND TRANSPORTATION**.

The cities of El Segundo and Manhattan Beach have asked that any future development plans on the parcel be made available for early review by the Cities, and that the development be consistent with the City of El Segundo's General Plan, Local Coastal Plan and zoning regulations. (AFC p. 5.9-23-25; FSA Land Use p. 4.5-17-20)

MITIGATION:

- ☒ The Project Owner shall submit development plans for the tank farm area to the Cities of El Segundo and Manhattan Beach and the Coastal Commission. Condition: **LAND-5**.

Cumulative Impacts

Cumulative land use impacts may occur when a project has effects that are individually limited but may be considerable when viewed together with effects of related new residential, commercial, and industrial projects. There are five nearby development proposals, either permitted or under review, which can be characterized as mixed-use, commercial, and limited residential use.

Depending on the timing of the start of construction for these developments and the project, there may be some traffic flow disruptions and/or inconveniences within the City of El Segundo.

In accordance with Condition of Certification **TRANS-5**, the Applicant will be working with the City of El Segundo to prepare a traffic control plan that would resolve potential traffic conflicts in the event that the construction schedule of the project overlaps with any of these other proposals.

The project will not make a significant contribution to regional impacts related to new development and growth, such as population immigration, the resultant increased demand for public services, and expansion of public infrastructure such as water and natural gas pipelines to serve residential development. (AFC p. 5.9-26; FSA Land Use, p. 4.5-20-21.)

Findings

With the implementation of the Conditions of Certification, below, the project conforms to applicable laws related to land use and all potential land use impacts will be mitigated to insignificance.

CONDITIONS OF CERTIFICATION

~~**LAND-1:** The project owner shall comply with the City of El Segundo Municipal Codes, including but not limited to:~~

- ~~1. minimum design and performance standards for the M2 Zone District;~~
- ~~2. parking standards; and,~~
- ~~3. outdoor advertising regulations.~~

~~**Verification:** At least 30 days prior to start of construction, the project owner shall submit to the GPM, written documentation, including evidence of review by the City of El Segundo that the project complies with the above codes, standards, and/or ordinances.~~

~~**LAND-2:** The project owner shall identify the secured lay down/staging area(s) for the project prior to site mobilization.~~

Verification: ~~The project owner shall provide a plot plan and location map showing the lay down/staging area(s) to the local government of jurisdiction (i.e. County of Los Angeles, the City of El Segundo, City of Manhattan Beach, etc.) planning department and to the California Coastal Commission if located within the State designated Coastal Zone.~~

~~The local government of jurisdiction and the Executive Director of the California Coastal Commission if applicable shall have 30 calendar days to provide written comments to the CPM on the lay down/staging area(s) to review for approval.~~

~~If the project owner requires additional off-site lay down/staging area, the project owner shall file a request for an amendment to their permit with the CPM.~~

~~At least 30 days prior to the start of site mobilization, the project owner shall provide to the CPM for review and approval the secured lay down and staging area(s).~~

~~**LAND-3:** The project owner shall provide appropriate evidence of compliance with Federal Aviation Administration (FAA) regulations regarding the marking and/or lighting of the project's new exhaust stacks.~~

Verification: Pursuant to the schedule contained in Condition of Certification ~~**TRANS-6,**~~ the project owner shall submit copies of the FAA Form 7460-1 with copies of the FAA response to Form 7460-1 to the CPM.

LAND-1: The project owner shall ensure that the project and its associated facilities are in compliance with the affected local jurisdiction's applicable adopted county or municipal code requirements for the project site's development (e.g., setbacks, zone district requirements, design criteria, height, sign requirements, etc.).

The project owner shall submit to the applicable city/county planning department for review and comment, a development plan showing site dimensions, design and exterior elevation(s) and any other item(s) that may be required by the local jurisdiction's planning department to conduct a ministerial review of the project and its associated facilities in accordance with the jurisdiction's site development requirements. The city/county planning department shall have 60 calendar days to review the plan(s) and provide written comments to the project owner. The project owner shall provide a copy of the city/county planning department's written comments and a copy of the development plan to the CPM.

Verification: At least 90 calendar days prior to the site mobilization on the power plant project site and its associated facilities, the project owner shall submit the proposed development plan to the affected jurisdiction for review and comment. The project owner shall provide any comment letters received from the local jurisdiction along with the proposed development plan to the CPM for review and approval.

LAND-2: The project owner shall identify the secured lay down/staging area(s) for the project prior to site mobilization. The project owner shall provide a plot plan and location map showing the lay down/staging area(s) to the affected local jurisdiction(s) planning

department(s) (i.e. County of Los Angeles, the City of El Segundo, City of Manhattan Beach, etc.) and to the Executive Director of the California Coastal Commission if located within the State designated Coastal Zone for review and comment. The local jurisdiction(s) and the Executive Director (if applicable) shall have 60 calendar days to review the lay down/staging area(s) and provide written comments to the project owner. The project owner shall provide a copy of the local jurisdiction's and the Executive Director's (if applicable) written comments and a copy of the secure lay down/staging area(s) to the CPM for review and approval.

Verification: The project owner shall provide a copy of the lay down/staging area(s) to the affected local jurisdiction and the Executive Director of the California Coastal Commission (if applicable) for written comment. At least 30 days prior to the start of site mobilization, the project owner shall provide any plan(s), map(s) showing the secured laydown and staging area(s) along with any comment letters from the local jurisdiction and the California Coastal Commission to the CPM for review and approval.

LAND-3 The project owner shall provide appropriate evidence of compliance with Federal Aviation Administration (FAA) regulations regarding the marking and/or lighting of the project's new exhaust stacks.

Verification: Pursuant to the schedule contained in Condition of Certification TRANS-6, the project owner shall submit copies of the FAA Form 7460-1 with copies of the FAA response to Form 7460-1 to the CPM.

LAND-4: The project owner shall either bore the proposed sewer line under 45th Street in the City of Manhattan Beach or use conventional excavation techniques using steel cover plates to allow traffic to have access to the Strand parking lot at all times. The time period necessary to complete the 45th Street sewer excavation/trenching and connection shall be kept to a minimum. The Applicant shall obtain the required encroachment permit(s) from the local government of jurisdiction(s). The sewer line shall be constructed during the off-peak season of September to May.

Verification: The project owner shall submit to the City of Manhattan Beach Public Works Department an encroachment permit application for their review and approval and to the CPM for final approval. The permit application shall include a description of the method that would be used to complete any excavations in 45th Street. The application shall include the proposed time to begin and complete the sewer line connection. Also, the permit application shall illustrate how the construction crew and traffic control will ensure that access to the parking lot is not disrupted.

The project owner shall monitor the construction of the sewer line in the 45th Street right-of-way at all times and promptly notify the City of Manhattan Beach Public Works Department and CPM of any difficulties experienced.

Prior to any ground disturbance within the 45th Street public right-of-way a copy of the City of Manhattan Beach approved/issued encroachment permit shall be submitted to the CPM.

The CPM or City of Manhattan Beach designated representative may conduct random site visits to verify compliance, and the CPM may temporarily stop construction to ensure access is maintained.

LAND-5: The project owner shall provide written notification to the CPM when any plans for use of the abandoned fuel tank farm area (Parcel 2) are developed and indicate whether the project owner believes such plans are subject to the Energy Commission's permitting authority in accordance to the Warren-Alquist Act. The written notification shall include a description of the development and an analysis of which agency has proper jurisdiction over the development according to the enacted laws, ordinances and standards in effect at the time such development is to be proposed.

Verification: The project owner shall provide written notification to the planning departments of the City of El Segundo and the City of Manhattan Beach and to the Executive Director of the California Coastal Commission who shall have 30 calendar days to provide written comments to the CPM to review.

At least 60 days prior to submitting any ~~building permit~~ applications to any other agency for development of the abandoned fuel tank farm area (Parcel 2); the project owner shall provide a copy of the written notification to the CPM. The project owner shall also provide copies of the written notification sent to the Cities of El Segundo, Manhattan Beach and to the Executive Director of the California Coastal Commission to the CPM.

LAND-6: The abandoned fuel storage tanks on Parcel 2 shall be removed prior to the start of commercial operation of the new generating units. Any site remediation and/or soil restoration activities required by appropriate authorities shall be completed following tank removal.

Following site remediation, the tank farm area shall be paved and landscaped in accordance with the landscape plan submitted and approved pursuant to condition of certification, VIS-2. The tank farm uses will be restricted to parking in the designated parking areas and approved uses in the paved area south of the designated parking area. Approved uses include temporary equipment staging and overflow parking during maintenance evolutions. The paved area shall not be used for permanent storage of vehicles, equipment or materials.

Verification: The project owner shall submit a detailed schedule for the removal of the fuel storage tanks, site remediation and/or soil restoration to the CPM for review and approval prior to the start of construction.

LAND-7: The project owner shall provide copies of final grading and drainage plans to the planning departments of the Cities of El Segundo and Manhattan Beach.

Verification: Pursuant to the schedule contained in Condition of Certification **CIVIL-1** the project owner shall also submit copies of the proposed drainage structures and grading plan to the City of El Segundo planning department and the City of Manhattan Beach planning department concurrent with their submittal to the Chief Building Official (CBO) and CPM.

LAND-8: The project owner shall maintain lease rights for the tideland and submerged land owned by the State of California leased via the California State Lands Commission. Project owner shall provide copies to the CPM of all new or amended leases and all relevant correspondence between the project owner and the State Lands Commission regarding lease terms.

Verification: The project owner shall provide the CPM with a copy of submitted lease applications filed with the State Lands Commission and other relevant correspondence. The project owner shall submit to the CPM a copy of all new or amended lease agreements with the California State Lands Commission.

LAND-9: The project owner shall provide copies of the final perimeter landscape plan(s) to the CPM. The landscape plans shall identify the area to be designated for public use, subject to restrictions for security and public safety as determined by the CPM. The project owner shall install public park-type benches within the public use area along the west property line of the ESGS property.

Verification: The public park-type benches shall be installed pursuant to the schedule contained in Condition of Certification **VIS-2**. Within 14 days after completion of the public use area, the project owner shall contact the CPM to request a final inspection.

LAND-10: Project pre-construction and construction activity shall not prevent public use of the County maintained Class 1 bicycle path. The project owner shall maintain public access along the bicycle path that borders the El Segundo Generating Station.

The project owner shall repair any damage to the bicycle path that is caused by pre-construction and construction activities conducted for the project.

Verification: The project owner shall complete any repair to the bicycle path pursuant to the schedule contained in Visual Resources Condition of Certification **VIS-3**.

The CPM, the designated representative of the affected local jurisdiction(s) and the designated representative of the Coastal Commission may conduct random site visits to verify compliance. Also, the CPM will investigate filed complaints to ensure compliance.

LAWS, ORDINANCES, REGULATIONS & STANDARDS

LAND USE

APPLICABLE LAW	DESCRIPTION
<i>FEDERAL</i>	
Federal Aviation Administration	Interruption of flight patterns by exhaust stacks.
<i>STATE</i>	
California Coastal Act, Pub. Res. Code §30000 et seq.	Establishes comprehensive scheme to govern land use planning along the California coast, administered by the California Coastal Commission.
State Tideland Leasing, Pub. Res. Code §6701 et seq.	Establishes authority for the State Lands Commission to lease non-granted state tidelands and submerged lands.
<i>LOCAL</i>	
City of El Segundo Local Coastal Program	Establishes the City's land use plan, zoning ordinance, and zoning district map within the Coastal Zone, under the oversight of the Coastal Commission.
City of El Segundo General Plan	Describe specific land uses allowed within the City.
City of El Segundo Zoning Ordinance	Implements the General Plan.
City of Manhattan Beach General Plan	Describe specific land uses allowed within the City
City of Manhattan Beach Zoning Ordinance	Implements the General Plan.
City of Los Angeles General Plan	Describe specific land uses allowed within the City
City of Los Angeles Zoning Ordinance	Implements the General Plan.

NOISE – Summary of Findings and Conditions

	POWER PLANT SITE	CUMULATIVE IMPACTS	LORS COMPLIANCE
Loudness/ Time of Day	MITIGATION	None	Yes
	<p><u>Construction:</u> Construction activities will occur on the tank farm, near Manhattan Beach residences. Disturbances to residences may occur.</p> <p>MITIGATION:</p> <ul style="list-style-type: none"> ☑ The Project Owner shall notify neighboring residents and business owners of impending construction at the power plant site and disseminate a telephone “hotline” number to report any undesirable noise conditions. Condition: NOISE-1. ☑ The Project Owner shall create a noise complaint process through which it will attempt to resolve all noise complaints. Condition: NOISE-2. ☑ The Project Owner shall comply with construction time-of-day and day-of-week restrictions. Condition: NOISE-8. <p>It is necessary to clear the steam pipes of debris that would damage the steam producing equipment. This flushing process, known as a steam blow, is traditionally accomplished by venting high-pressure steam to the atmosphere, which would produce a very loud noise at the nearest residential receptor. A quieter process must be employed.</p> <p>MITIGATION:</p> <ul style="list-style-type: none"> ☑ The Project Owner shall use a continuous steam blow or other equivalent low-pressure process. The Project Owner will notify affected groups prior to conducting steam blows. Conditions: NOISE-4 & NOISE-5. <p><u>Operation:</u> During its operating life, the generating facility will represent essentially a steady, continuous noise source day and night. The noise emitted by power plants during normal operations is generally broadband, steady state in nature. Occasional short-term increases in noise level will occur as steam relief valves open to vent pressure, or during start-up or shutdown, as the plant transitions to and from steady-state operation. The removal of the fuel oil storage tanks will remove sound shielding between 45th Street Residences and noise sources on the Generating Station. Operational sound levels at local residences are not expected to rise more than 2 dBA.</p>		

	POWER PLANT SITE	CUMULATIVE IMPACTS	LORS COMPLIANCE
Worker Noise:	MITIGATION	None	Yes
	<p>Power plant noise can damage workers' hearing if not properly managed.</p> <p>MITIGATION:</p> <ul style="list-style-type: none"> ☑ The Project Owner will implement a noise control program for employee noise exposure. Condition: NOISE-3. ☑ The Project Owner shall conduct an occupational noise survey and take action based upon its results. Condition: NOISE-7 <p>The loudspeaker system can be heard outside of the generating station. Modern communication equipment eliminates the need to use loudspeakers for general communication.</p> <p>MITIGATION</p> <ul style="list-style-type: none"> ☑ The loudspeaker system shall be reserved for emergencies and for testing purposes only. Condition: NOISE-10 <p><i>References: AFC p. 6.3-3-6; FSA Noise, pp. 4.6-6-9.</i></p>		
Vibration	MITIGATION	None	YES
	<p>The primary source of vibration noise associated with a power plant is the operation of the turbines. It is anticipated that the plant's turbines will be maintained in optimal balance to minimize excessive vibration that can cause damage or long term wear. Consequently, no excessive vibration would be experienced by adjacent land uses. Another potential source of significant vibration is pile driving during construction. Given the relatively great distances to the nearest sensitive receptors, no vibration effects are likely if pile driving were required.</p> <p>MITIGATION:</p> <ul style="list-style-type: none"> ☑ The Project Owner shall ensure that construction and operation activities do not cause sensitive receptor vibrations to exceed limit. Condition: NOISE-5. <p><i>References: FSA Noise, p.4.6-7.</i></p>		

NOISE – GENERAL

The construction and operation of any power plant creates noise and sound. Construction noise is a temporary phenomenon. Construction noise levels heard offsite will vary from hour to hour and day to day, depending on the equipment in use and the operations being performed.

The character and loudness of this noise, the times of day or night during which it is produced, and the proximity of the facility to any sensitive receptors are combined to determine whether the facility will meet applicable noise control laws or cause any significant noise impacts.

Sound associated with the operation of the project will be produced by the inlets, outlets, structures, motors, pumps and fans associated with the two gas turbines, the heat recovery

steam generators, the electric generators, and the transformers. Essentially, project equipment will operate continuously and produce a steady sound 24-hours per day, seven days per week. Occasional short-term noise level increases will occur during plant start-up or shut down, during load transitions, and during opening of steam release valves for venting pressure. At other times, the plant will be shut down, producing less noise.

The removal of the fuel oil storage tanks represents a unique noise exposure issue. Currently, the fuel oil storage tanks act as noise shields for some homes in Manhattan Beach. Removal of the tanks could result in increased power plant noise reaching those homes. Further complicating noise level issues, is the presence of two other sources of noise and sound: the surf of Santa Monica Bay and jets taking off at Los Angeles International Airport.

The project is located in the City of El Segundo. Parties argued during the process that the project should have to comply with El Segundo and Manhattan Beach's noise ordinances. The Applicant conceded, and CEC Staff concurred.

Loudness/Time of Day

Construction: The construction phase does not create long-term increases in noise levels. The potentials for speech interference during the daytime or sleep disturbance at night are the most appropriate criteria for assessing construction noise impacts. If the hourly average construction noise level during the day were to exceed 60 dBA Leq in an outdoor activity area near a residence, the construction noise would begin to interfere with speech communication.

The parties reached agreement on Condition of Certification **NOISE-8**, which establishes time-of-day and day-of-week restrictions on use of the tank farm area to support construction and demolition. The parties further agreed to two conditions (**NOISE-1** and **NOISE-2**) that govern communication of noise complaints during construction.

MITIGATION:

- ☒ The Project Owner will notify neighboring residents and business owners of impending construction at the power plant site and disseminate a telephone "hotline" number to report any undesirable noise conditions. Condition: **NOISE-1**.
- ☒ The Project Owner will create a noise complaint process through which it will attempt to resolve all noise complaints. Condition: **NOISE-2**.
- ☒ The Project Owner shall comply with construction time-of-day and day-of-week restrictions. Condition: **NOISE-8**.

Since the power plant will include heat recovery steam generators (HRSGs) to produce steam from the waste heat of the combustion turbines, it is necessary to clear the steam pipes of debris that would damage this equipment. This flushing process, known as a steam blow, is traditionally accomplished by venting high-pressure steam to the atmosphere. The Applicant agreed to utilize a low pressure continuous steam blow process or equivalent. The parties agreed upon conditions that govern this steam blow requirement.

MITIGATION:

- ☒ The Project Owner shall use a continuous steam blow or other equivalent low-pressure process. The Project Owner will notify affected groups prior to conducting steam blows. Conditions: **NOISE-4 & NOISE-5.**

Operation: During its operating life, the generating facility will represent essentially a steady, continuous noise source day and night. The noise emitted by power plants during normal operations is generally broadband, steady state in nature. Occasional short-term increases in noise level will occur as steam relief valves open to vent pressure, or during start-up or shutdown, as the plant transitions to and from steady-state operation. The removal of the fuel oil storage tanks will remove sound shielding between 45th Street Residences and noise sources at the Generating Station. Operational sound levels at local residences are not expected to rise 2 dBA.

The parties reached agreement on a contentious issue involving how the operational noise survey would be conducted. The proposed project has two other significant noise sources in the area: jets taking off at Los Angeles International Airport (LAX) and the surf of Santa Monica Bay beaches in the area. Further, the most likely action to affect residential receptors is the removal of the fuel oil storage tanks. While the Applicant and Energy Commission staff do not predict that resultant residential noise levels will exceed ambient median levels by 2 or more decibels, the parties agreed to a protocol for conducting before and after noise surveys to ensure the accuracy of this determination. The Commission concurs on this condition.

MITIGATION:

- ☒ The Project Owner shall ensure that the project does not cause resultant residential noise levels to exceed ambient median levels by 2 or more decibels. Condition: **NOISE-6.**

Power plant noise can damage workers' hearing if not properly managed.

MITIGATION:

- ☒ The Project Owner will implement a noise control program for employee noise exposure. Condition: **NOISE-3.**
- ☒ The Project Owner shall conduct an occupational noise survey and take action based upon its results. Condition: **NOISE-7.**

The loudspeaker system can be heard outside of the generating station. Modern communication equipment eliminates the need to use loudspeakers for general communication.

MITIGATION

- ☒ The loudspeaker system shall be reserved only for emergencies and for testing. Condition: **NOISE-10.**

Vibration

A potential source of significant vibration is pile driving during construction. Given the relatively great distances to the nearest sensitive receptors, no vibration effects are likely if pile driving is required.

The primary source of vibration noise associated with a power plant is the operation of the turbines. It is anticipated that the plant's turbines will be maintained in optimal balance to minimize excessive vibration that can cause damage or long term wear. Consequently, no excessive vibration would be experienced by adjacent land uses.

MITIGATION:

- ☒ The Project Owner shall ensure that construction and operation activities do not cause sensitive receptor vibrations to exceed limit. Condition: **NOISE-5**.

Cumulative Impacts

No other new or proposed noise-producing development near the project site was identified which might cause cumulative impacts exceedences of noise standards or criteria. (AFC p. 6.3-7.)

Findings

With the implementation of the Conditions of Certification, below, the project conforms to applicable laws related to noise and all potential noise impacts will be mitigated to insignificance.

CONDITIONS OF CERTIFICATION

NOISE-1: At least 15 days prior to site mobilization, the project owner shall notify all residents, property owners, and business owners within one-half mile of the site, and the City of Manhattan Beach, the City of El Segundo, and L.A. County Lifeguard Headquarters, by mail and/or other effective means, of the commencement of project construction. At the same time, the project owner shall establish and disseminate a 24-hour "hotline" telephone number for use by the public to report any undesirable noise conditions associated with the construction of the project. This telephone number shall also be posted at the project site during construction in a manner visible to passersby. This telephone number shall be maintained until the project has been operational for at least one year. The telephone shall be located in an area that is likely to be staffed, and, if the telephone is not staffed 24 hours per day, the project owner shall include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended.

Verification: The project owner shall transmit to the CPM in the first Monthly Construction Report following site mobilization, a statement, signed by the project manager, attesting that the above notification has been performed, and describing the method of that notification. This statement shall also attest that the telephone number has been established and posted at the site.

NOISE-2: Throughout the construction and operation of the project, the project owner shall document, investigate, evaluate, and attempt to resolve all project-related noise complaints as soon as possible.

- The project owner shall establish and disseminate a 24-hour "hotline" telephone number for use by the public to report any undesirable noise conditions associated with the project. The telephone shall be located in an area that is likely to be staffed, and, if the telephone is not staffed 24 hours per day, the project owner shall include an automatic answering feature, with date and time stamp recording, to answer calls when the phone is unattended.
- The project owner shall designate a noise monitoring officer for each construction shift, and for the daytime shift after the plant is placed into service. The noise monitoring officer shall be trained in the use of a sound level meter, and shall be empowered to halt any construction activities causing or likely to cause a violation of the Conditions of Certification herein. The noise monitoring officer shall carry at all times an operable portable electronic device (such as telephone or pager) to receive any incoming "hotline" call.
- The noise monitoring officer shall log each noise complaint on a CPM-approved complaint form and shall attempt to resolve the complaint.
- For construction noise complaints received outside of the construction hours and days allowed as described by Condition of Certification **NOISE-8**, the noise monitoring officer shall take immediate steps to determine whether power plant construction is causing the noise and, if so, to reduce the noise level of that activity or take other appropriate action to remedy the complaint as quickly as possible (not to exceed one hour) in order to comply with the Conditions of Certification.
- For construction noise complaints, the noise monitoring officer shall contact the complainant within the hour, if requested by the complainant, with information on the status and resolution of the complaint.
- In the event of construction noise complaints for two consecutive periods outside of which construction is specifically allowed by **NOISE-8**, either from a single affected residence, from multiple residences, or businesses, the project owner shall monitor noise levels at the receptor(s) for no less than the following two consecutive periods.
- The noise monitoring officer, as appropriate, shall measure site fence-line noise levels, and/or measure noise levels at the complainant's property line, to assure compliance.
- The project owner shall attempt to contact the person(s) making a plant operations noise complaint within 24 hours, and shall conduct an investigation to determine the source of noise related to the complaint.

- If the noise is related to plant operations, the project owner shall take all feasible measures to reduce the noise at its source as soon as possible.
- If the noise complaint is not resolved to the satisfaction of the complainant, including the time frame for resolution, the noise monitoring officer shall provide the Commission's toll free compliance telephone number (1-800-858-0784 unless otherwise specified by the CPM).
- Within 24 hours of receiving a noise complaint, the project owner shall file a copy of the Noise Complaint Resolution Form, or similar instrument approved by the CPM, with the City of El Segundo and City of Manhattan Beach, and with the CPM, documenting the complaint. If mitigation is required to resolve a complaint, and the complaint is not resolved within a 3-day period, the project owner shall submit a progress report and a proposed mitigation schedule, subject to the approval of the CPM, to the CPM and the affected City within 5 days of receiving the complaint.
- Following resolution of the noise complaint, the project owner shall submit an updated Noise Complaint Resolution Form and a report to the CPM and the affected City documenting the complaint and the actions taken. The report shall include: a complaint summary, including final results of noise reduction efforts; and if obtainable, a signed statement by the complainant stating that the noise problem is resolved to the complainant's satisfaction.

Verification: The project owner shall provide to the CPM, in the applicable Monthly and/or Annual Compliance Report, a listing of noise complaints received in that time period, and the status of resolution of each complaint, including all those which have not yet been resolved.

NOISE-3: Prior to site mobilization, the project owner shall submit to the CPM for review and approval a noise control program. The noise control program shall be used to reduce employee exposure to high noise levels during construction and also to comply with applicable OSHA and Cal-OSHA standards.

Verification: At least 30 days prior to site mobilization, the project owner shall submit to the CPM the above referenced program for review and approval. The project owner shall make the program available to OSHA upon request.

NOISE-4: A low-pressure continuous steam blow or other equivalent low-pressure process shall be employed. Prior to site mobilization, the project owner shall submit a description of this process, with expected noise levels and projected hours of execution, to the CPM, who shall review the proposal with the objective of ensuring that the resulting noise level does not exceed the nighttime ambient hourly L_{50} value determined in **NOISE-6** plus 5 decibels at the nearest residential property line. Project owner shall strive to avoid nighttime steam blows. If nighttime low pressure steam blows are unavoidable, these low pressure steam blows shall not exceed nighttime ambient hourly L_{50} value determined in **NOISE-6** plus 2 decibels at the nearest residential property line during the hours 6:00 p.m. to 7:30 a.m. Copies of the process description and predicted noise levels shall be provided to the Cities of Manhattan Beach and El Segundo.

Verification: At least 15 days prior to any low-pressure continuous steam blow, the project owner shall submit to the CPM drawings or other information describing the steam blow process, including the noise levels expected and the projected time schedule for execution of the process.

NOISE-5: At least 15 days prior to the first steam blow(s), the project owner shall notify the Cities of El Segundo and Manhattan Beach, L.A. County Lifeguard Headquarters, and all residents, property owners and business owners within one mile of the site of the planned steam blow activity, and shall make the notification available to other area residents in an appropriate manner. The notification may be in the form of letters to the area residences, telephone calls, fliers and/or other effective means. The notification shall include a description of the purpose and nature of the steam blow(s), the proposed schedule, the expected noise levels and potential hazards associated with them, the “hotline” phone number where people register complaints, and the explanation that it is a one-time operation and not a part of normal plant operations.

Verification: Within 5 days of notifying these entities, the project owner shall send a letter to the CPM confirming that there has been appropriate notification to the residents, property owners, Cities and businesses of the planned steam blow activities, including a description of the method(s) of that notification.

NOISE-6: The project design and implementation shall include appropriate noise mitigation measures adequate to ensure that the project will not cause resultant noise levels to exceed the ambient median noise level (L_{50}) at residential receivers by 2 decibels or more, and that the noise due to plant operations will otherwise comply with the noise standards of the El Segundo and Manhattan Beach Municipal Codes.

No new pure tone components may be introduced. No single piece of equipment shall be allowed to stand out as a source of noise. Steam relief valves shall be adequately muffled.

- A. Determine the ambient noise level (L_{50}) at Residential Receivers. Prior to site mobilization, the project owner shall prepare and submit to the City of El Segundo and City of Manhattan Beach for review and comment, and to the CPM for review and approval, a Pre-Construction Noise Survey Plan. This plan will indicate the survey procedure and methodology for establishing the ambient noise level at nearby residential receivers. At a minimum, the plan will include the following:
- The project owner will conduct a 30-day continuous community noise survey at a residential receptor (on 45th Street in Manhattan Beach), selected by the CPM in cooperation with the City of Manhattan Beach. This pre-construction survey shall be conducted during the period of June 1 to September 30. Hourly L_{eq} , L_{50} and L_{90} values shall be measured.
 - Existing ESGS Units 3 and 4 shall be operating normally during the course of the survey, and the levels of plant operation will be documented during the survey. The plan will establish a range of acceptable (“normal”) operating conditions suitable for the purposes of these studies.

- A simultaneous control measurement will be conducted within the project boundary. The site shall be selected to ensure that the dominant noise source will be the surf, requiring a clear line of sight to the surf. A location near the southwest project site corner is preferred to minimize the potential for noise from the existing power plant to influence the surf noise measurements. Wave height and other surf conditions, and any unusual environmental conditions occurring during the survey period shall be documented.
- For each of the days of noise data collected at each receptor, the arithmetic average median noise level (L_{50}) shall be computed for the quietest consecutive 4-hour period. The resultant average median noise levels shall then be averaged arithmetically to calculate the relationship between surf noise levels and ambient noise levels along the northern side of the El Porto Community.
- If the initial 30-day measurement data, in the judgment of the CPM in consultation with the City of Manhattan Beach, fail to demonstrate a consistent relationship of surf and ambient noise levels, the measurement will be repeated until a consistent relationship can be established.

Following approval of the Survey Plan, and prior to site mobilization, the project owner shall implement the survey and present the results in a Pre-Construction Noise Survey Report to the Cities of El Segundo and Manhattan Beach and to the CPM. The Report will include a discussion of the ambient noise level taking into consideration all relevant factors, such as plant operating conditions, surf and wind conditions.

- B. Conduct post-construction survey. As soon as feasible, within the time frame described below and after Units 5, 6 and 7 first achieve a sustained output of 80 percent or greater of rated capacity, the project owner shall conduct short-term survey noise measurements at monitoring sites ST-1, ST-2, ST-3 and ST-12 (as described in the AFC, Section 5.12, Figure 5.12-3, as amended May 4, 2001). "In addition, the Applicant shall conduct a 30-day community noise survey at the same receptor locations used for the 30-day noise measurement cited in Section A above."

The post-project community noise survey shall be conducted between June 1 and September 30, using the methods described in Item A. above. The post-construction survey shall also include measurement of one-third octave band sound pressure levels at each of the above locations to ensure that no new pure-tone noise components have been introduced. If environmental conditions prevent completion of the post-construction community noise survey in a timely manner, then the survey shall be completed as soon as conditions allow.

Following the post-construction survey, the project owner shall present the results in a Post-Construction Noise Survey Report to the Cities of El Segundo and Manhattan Beach and to the CPM. The Report will include a discussion of the relationships between surf and ambient noise levels.

- C. Implement Tank Removal Noise Mitigation if Required. Mitigation measures shall be implemented to reduce noise levels to a level of compliance if the results from the post-construction noise survey at the residential receptor location indicate that the ambient median noise level (L_{50}) has increased by 2 decibels or more due to facility operation, as determined by the relationship between surf and ambient noise levels obtained from the pre-construction survey. The project owner shall present the proposed mitigation measures to the Cities of El Segundo and Manhattan Beach and to the CPM.
- D. Implement Pure Tone Mitigation if Required. If a facility-related pure tone is found to be present at any of the above monitoring sites, mitigation measures shall be implemented to eliminate the pure tone. For the purpose of this condition, the State of California's Model Community Noise Control Ordinance defines a pure tone. The project owner shall present the proposed mitigation measures to the Cities of El Segundo and Manhattan Beach and to the CPM.
- E. Implement Plant Noise Mitigation if Required. If the results of noise measurements at ST-1, or ST-12 indicate that the ambient noise level has increased by more than 5 decibels due to facility operation, as compared with the baseline noise measurements conducted on July 20 and 21, 2000, the owner will implement mitigation measures to reduce the noise at those locations to comply with the Municipal Code of the City of El Segundo. The project owner shall present the proposed mitigation measures to the Cities of El Segundo and Manhattan Beach and to the CPM.

Verification:

1. Pre-Construction Survey and Determination of Ambient Noise Level.
 - a) At least 60 days prior to site mobilization, the project owner shall provide the Pre-Construction Noise Monitoring Survey Plan to the CPM for review and approval.
 - b) Within 30 days of completion of the survey, the project owner shall provide to the CPM for review and approval the results of the pre-construction noise survey.
2. Post-construction Survey. Within 45 days after completing the post-construction surveys, the project owner shall submit a summary report of the survey to the CPM. Included in the report will be a description of any additional mitigation measures necessary to achieve compliance with the above listed noise limits, and a schedule, subject to CPM approval, for implementing these measures.
3. Mitigation Implementation. If mitigation is required, then upon completion of installation of these measures, the project owner shall submit to the CPM a summary report of a new noise survey, performed as described in paragraph B and showing compliance with this condition.

NOISE-7: Within 30 days of the project first achieving a sustained output of 80 percent or greater of rated capacity, the project owner shall conduct an occupational noise survey

to identify the noise hazardous areas in the facility. The survey shall be conducted by a qualified person in accordance with the provisions of Title 8, California Code of Regulations, sections 5095-5099 (Article 105) and Title 29, Code of Federal Regulations, section 1910.95. The survey results shall be used to determine the magnitude of employee noise exposure. The project owner shall prepare a report of the survey results and, if necessary, identify proposed mitigation measures that will be employed to comply with the applicable California and federal regulations.

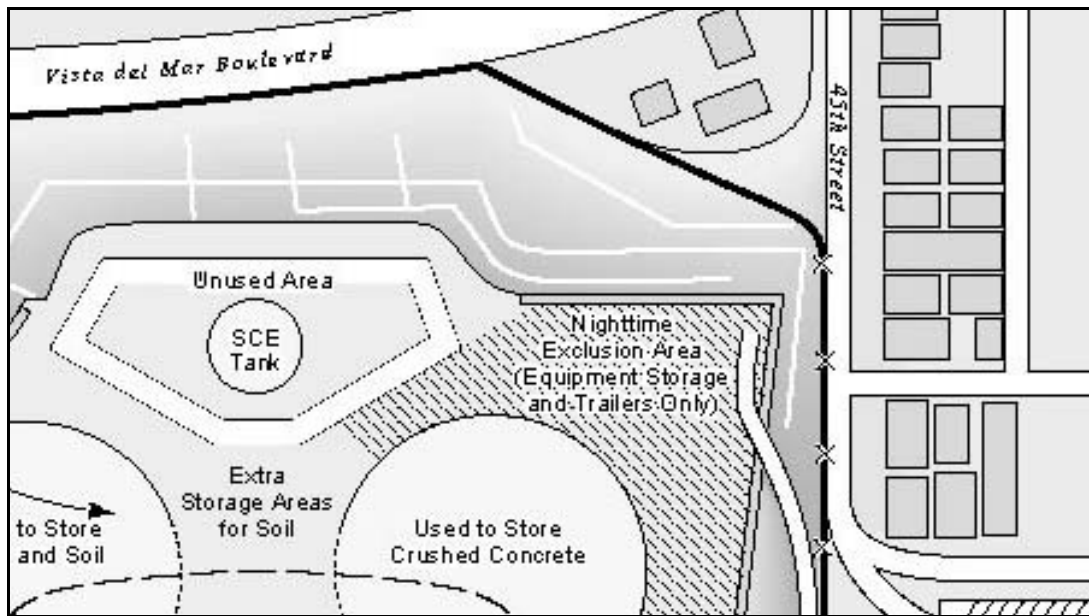
Verification: Within 30 days after completing the survey, the project owner shall submit the noise survey report, including proposed mitigation measures, to the CPM for review and approval. The project owner shall make the report available to OSHA and Cal-OSHA upon request.

NOISE-8: Heavy equipment operation and noisy construction or demolition work shall be restricted beginning at site mobilization as described below.

No pure tones are allowed outside of the hours of 7:30 A.M. to 6:00 P.M. Monday-Friday, and 9:00 A.M. to 6:00 P.M. Saturday. Haul trucks and other engine-powered equipment shall be equipped with adequate mufflers. Haul trucks shall be operated in accordance with posted speed limits. Truck engine exhaust brake use shall be limited to emergencies.

Tank Farm Area: Noise levels at any residential property line due to tank farm construction or demolition shall be limited to the average daytime hourly ambient L_{50} value plus 5 dBA, or 65 dBA L_{50} , whichever is lower for continuous noise. ~~and~~ For intermittent noise (up to 30 minutes in one hour) the maximum noise levels shall be ambient L_{50} plus 10 dBA). Haul trucks and other engine-powered equipment shall be equipped with adequate mufflers. Haul trucks shall be operated in accordance with posted speed limits. Truck engine exhaust brake use shall be limited to emergencies.

The use of the tank farm area is divided into four phases. For each phase the following restrictions shall be observed. Construction activity outside the hours described will not be allowed in the area south of the southern tank, which shall be termed the nighttime exclusion area, shown below:



Phase I: Prepare the tank farm for use during demolition and construction: cutting openings into the sides of the tanks, use of grader, backhoe and small trucks, a few truck trips to remove material, some welding, installation of landscaping and irrigation. All demolition and construction will occur during daytime hours of 7:30 AM to 6:00 PM Monday - Friday and 9:00 AM to 6:00 PM on Saturdays. No demolition or construction shall occur on Sundays or holidays.

Phase II: Demolition period: Entering and exiting the site, hauling material. Construction activities shall avoid the southerly end of the tank farm. All construction activities will be restricted to 7:30 AM to 6:00 PM. During the hours 5:00PM to 9:00AM, the nighttime exclusion area may be accessed by passenger vehicles or pedestrians to inspect tanks. . Except as further restricted above, all demolition and construction shall occur between 7:30 AM to 6:00 PM Monday - Friday and 9:00 AM to 6:00 PM on Saturdays. No demolition or construction shall occur on Sundays or holidays.

Phase III: Construction period: Haul material into and out of the area; remove the north tank. Daytime activities will be shielded from 45th street residents by the use of the south tank as a dome and as a shield. All demolition and construction shall occur between 7:30 AM to 6:00 PM Monday - Friday and between 9:00 AM to 6:00 PM on Saturdays. No demolition or construction shall occur on Sundays or holidays.

Phase IV: Operations period: Remove the south tank, and limit the traffic on the tank farm area. During daytime only, metal cutting will be allowed from 9:00 AM to 5:00 PM Monday through Friday, except holidays. During daytime only, trucks may be used to remove tank material and to remove soil. Bulldozers, graders etc. may be used during daytime hours only to move, excavate and replace soil. All demolition and construction

shall only occur between 7:30 AM and 6:00 PM Monday-Friday. No demolition or construction shall occur on Saturdays, Sundays or holidays.

Other Areas of the Project Site: The noise standards for construction and demolition occurring at the rest of the project site (with the exception of the tank farm area) shall be:

- 65 dBA hourly L_{50} at any residential receptor during the hours of 7:30 A.M. to 6:00 P.M. Monday-Friday, and 9:00 A.M. to 6:00 P.M. Saturday.
- The ambient hourly L_{50} value plus 2 dBA at any residential receptor at any other time.

Ambient noise levels shall be determined from the pre-construction survey conducted pursuant to **NOISE-6**.

Verification: The project owner shall transmit to the CPM in the first Monthly Construction Report a statement acknowledging that the above restrictions will be observed throughout the construction of the project.

NOISE-9: The project design and implementation shall ensure that site mobilization, demolition, construction, or operation of the power plant will not cause vibration at any sensitive receptor to exceed a peak particle velocity of 0.003 in/sec, or to cause vibration which is perceptible without use of instruments to any reasonable person of normal sensitivity.

The noise monitoring officer designated pursuant to Condition of Certification **NOISE-1** shall log each construction vibration complaint on a CPM-approved complaint form and attempt to resolve the complaint. For construction vibration complaints received outside of the construction hours or days allowed as described by Condition of Certification **NOISE-8**, the noise monitoring officer shall take immediate steps to determine whether power plant construction is causing the vibration and, if so, to reduce the vibration level of that activity as quickly as possible (not to exceed one hour) in order to comply with the Conditions of Certification. The noise monitoring officer, as appropriate, shall measure site fence-line vibration levels to assure compliance. If the vibration complaint is not resolved to the satisfaction of the complainant, including a time frame for resolution, the noise monitoring officer shall provide the Commission's toll free compliance telephone number (1-800-858-0784, unless otherwise specified by the CPM).

In the event of construction-related vibration complaints either from a single affected residence, from multiple residences, or businesses, the project owner shall monitor vibration at the receptor(s) for no less than the following two days of construction.

Within 24 hours of receiving a complaint for vibration, the project owner shall file a copy of the Noise Complaint Resolution Form, or similar instrument approved by the CPM, with the City of El Segundo and/or City of Manhattan Beach, and with the CPM.

If mitigation is required to resolve a complaint, and the complaint is not resolved within a 3-day period, the project owner shall submit a progress report and a proposed mitigation schedule, subject to the approval of the CPM, to the CPM and the affected City within 5 days of receiving the complaint. The project owner shall submit an updated Noise Complaint Resolution Form to the CPM and the affected City when the mitigation is finally implemented.

Verification: The project owner shall provide, in the applicable Monthly and/or Annual Compliance Report, a listing of vibration complaints received in that time period, and the status of resolution of each complaint, including all those which have not yet been resolved.

NOISE-10: The loudspeaker system shall be used only for testing and emergencies.

Verification: The project owner shall transmit to the CPM in the first Monthly Construction Report a statement acknowledging that the above restrictions will be observed throughout the construction and operation of the project.

LAWS, ORDINANCES, REGULATIONS & STANDARDS

NOISE

APPLICABLE LAW	DESCRIPTION
<i>FEDERAL</i>	
EPA 1974 Noise Guidelines	Guidelines for State and Local Governments
HUD Circular 1390.2	Directions for noise levels at construction-site boundaries not to exceed 65 dBA for 9 hours in a 24-hour period.
29 CFR Section 1910.95 (OSHA Health and Safety Act of 1970)	Exposure of workers to over an 8-hour shift should be limited to 90 dBA.
<i>STATE</i>	
California Vehicle Code §23130 and 23130.5	Regulates vehicle noise limits on California Highways.
8 CCR §5095 et seq. (Cal-OSHA)	Sets employee noise exposure limits. Equivalent to Federal OSHA standards.
<i>LOCAL</i>	
City of El Segundo Noise ordinance	Establishes construction and operational noise standards..
City of Manhattan Beach Noise ordinance	Establishes construction and operational noise standards..

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